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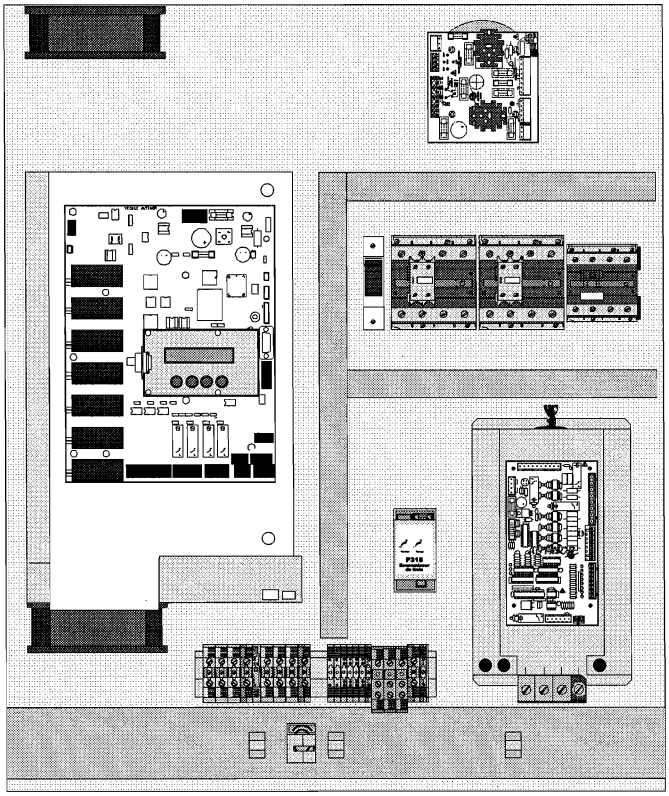
AUTINOR

User Manual



Installation and maintenance of
AUTINOR'S VECTOR DRIVE
for
OTIS MCS 220 M CONTROLLER

Programme « ARB. V07 »

Version of 31 october 2002

WARNING

This manual is deemed correct on going to press.

The information contained has been scrupulously checked. However ***AUTINOR*** declines all responsibility for error or omission.

Should you notice any discrepancy or unclear description, or if you have any suggestions, we would appreciate your written comments (by mail fax or Email) to:

Société ***AUTINOR*** - Service Documentation
Z.A. Les Marlières
59710 AVELIN
☎ [33] 03-20-62-56-00
[33] 03-20-62-56-41
✉ autinor@autinor.com

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Where quotations are taken, the following at least must be noted:

- The company name of ***AUTINOR***,
- The date of the original edition.

ELECTROMAGNETIC COMPATIBILITY

Since the 1st January 1996 all lift installations are obliged to respect the essential requirements of the European Directive 89/336/CEE concerning Electromagnetic Compatibility (EMC).

The equipment is only one component of an installation; it is therefore not obliged to show the CE marking as stated in this directive. However in order to allow you to write your **declaration of conformity**, and according to professional rules, all ***AUTINOR*** Drive are supplied with an ***engagement of conformity***.

Your declaration of conformity can rest on this engagement,

only if the equipment has been installed exactly as advised in this manual.

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PREAMBLE

Handling advice for equipment:

Whatever the load, handling operations can be dangerous (collision, dropping, crushing,...). Whenever possible use mechanical handling rather than manual handling. When manual handling can not be avoided, respect the rules.

At European level, these rules are set out in the Directive 90/269/CEE, Council Directive dated 19 May 1990 "concerning minimal heath and safety instructions for manual load handling with risks, to the worker, notably in the lower spinal area".

En France, la réglementation de la manutention manuelle est constituée des textes suivants :

- *Code du travail article R 231-72 (Décret n° 92-958 du 3 septembre 1992 transposant en droit français la directive européenne 92/269/CEE)*

  « Lorsque le recours à la manutention manuelle est inévitable... un travailleur ne peut être admis à porter d'une façon habituelle des charges supérieures à 55 kilogrammes qu'à condition d'y avoir été reconnu apte par le médecin du travail, sans que ces charges puissent être supérieures à 105 kilogrammes. »

- *Décret n° 95-826 du 30 Juin 1995, Titre 1er - article 8 « fixant les prescriptions particulières de sécurité applicables aux travaux effectués sur les ascenseurs »*
  + Circulaire de mise en œuvre DRT 96/3 du 25 Mars 1996

  « ... Les travaux comportant le port manuel d'une masse supérieure à 30 kilogrammes, ou comportant la pose ou la dépose manuelle d'éléments d'appareils d'une masse supérieure à 50 kilogrammes, ... doivent être effectués par au moins deux travailleurs ; »

complétée par la norme française NF X 35-109 qui donne des recommandations plus précises qui prennent en compte les paramètres suivants : âge du travailleur, nature de la tâche (occasionnelle ou répétitive), charge unitaire, distance parcourue :

	Load permitted (occasional carrying)	Load permitted (constant carrying)
Man 18 / 45 years	30 kg	25 kg
Man 45 / 60 years	25 kg	20 kg

Safety measures:

Follow the instructions which were given to you by your management when using individual protection equipment (gloves, shoes, glasses, restraint harness, etc).

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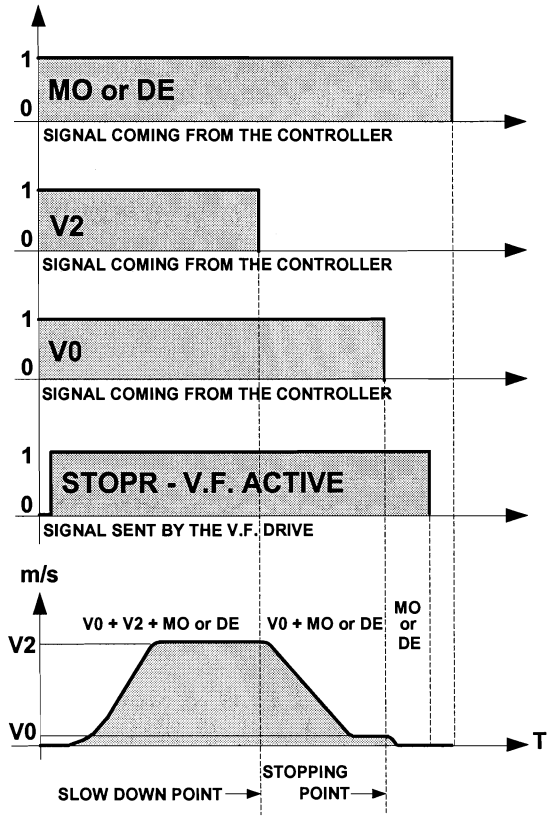
CONTROL OF THE FREQUENCY DRIVE (PRINCIPLE)

For the Frequency Drive to work, it needs as well as a full safety lane, to receive:

- **the direction Up or Down, and the movement speed (V2, V1, Vins, Viso or V0).** These informations are making by the **OT01** board with the information receive from the lift controller.

MOVEMENT IN V2 (Full speed):

If the lift controller decides to move off in full speed **V2**, it will simultaneously activate the Inputs **V2**, **V0** and **MO** or **DE**.



The slow-down will take place by losing V2 but keeping V0 and MO or DE until the stopping point.

The slow-down signal (loss of V2) should come at the point corresponding to the deceleration distance (**DV2**) read in the graph below increased by 10 centimetres run in V0.

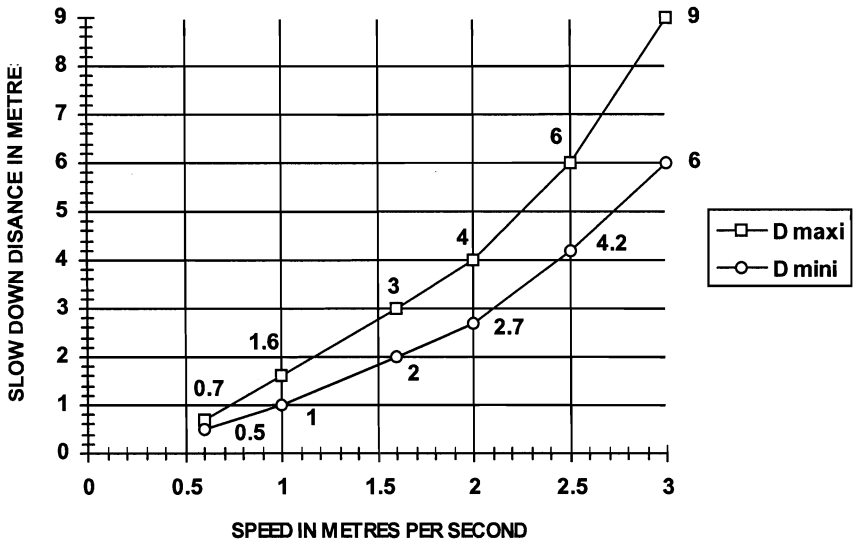
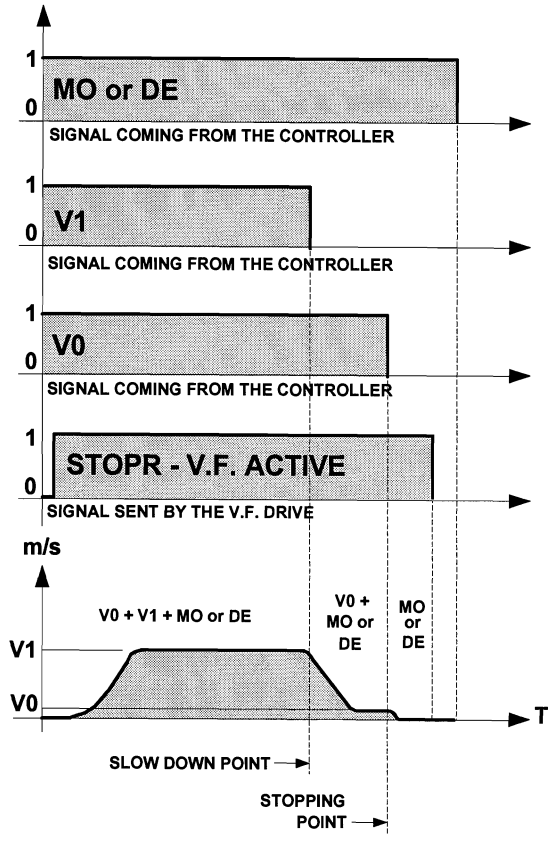


Figure 1
Slow down distance DV2 in relation to the nominal speed

Remark:
This figure shows average slow down distance. For setting, see field document.

MOVEMENT IN V1:

* If the controller decides to move off in **V1** speed, it will simultaneously activate the Inputs **V1**, **V0** and **MO** or **DE**.

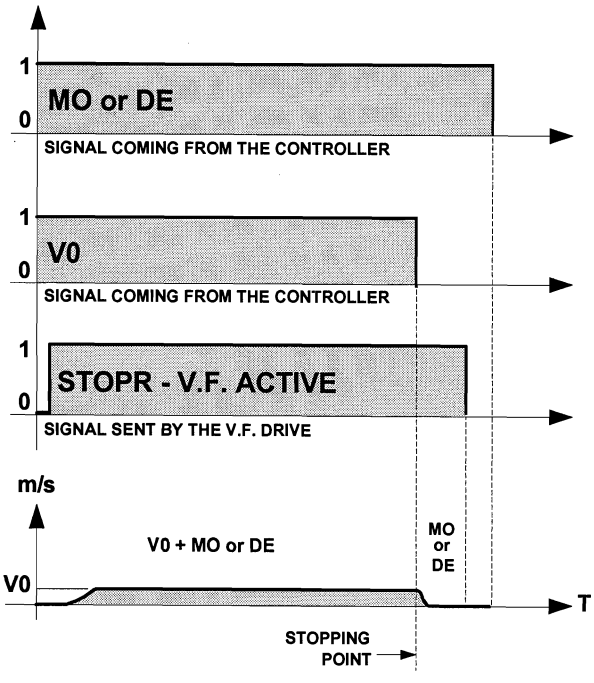


The slow-down will take place by losing V1 but keeping V0 and MO or DE until the stopping point.

Note:
When on Inspection, you will lose V1 and V0 to stop on the brake.

MOVEMENT IN V0:

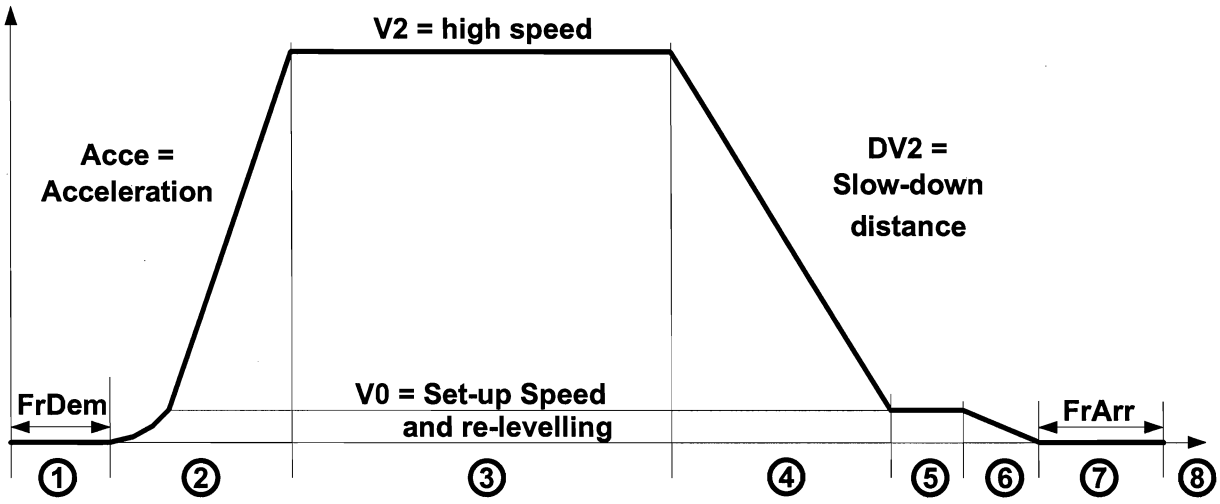
* If the Lift controller decides to move off in **V0**, it will simultaneously activate the inputs **V0** and **MO** or **DE**.



V0 will disappear at the stopping point.

The movement inputs V0, V1, V2, UP (MO) and DOWN (DE) use opto-electronic couplers which can receive AC or DC signals from 24 to 220 V.

DESCRIPTION OF THE SEQUENCE OF SIGNALS FROM START-UP AT FULL SPEED V2 UNTIL STOPPING.



1. When the controller has decided that it can use full speed **V2**, it will activate **V2**, **V0** and give the direction **U**p (Mo) or **D**own (De). The Frequency Drive having received the order to move, energises the **L** contactor, then when the capacitor voltage is sufficient, the **S** contactor. **L** and **S** stabilise electrically the motor, then the **FR** contactor supplies the brake for opening.

2. We start by applying low voltage and the lift accelerates. The acceleration will last the time programmed at parameter « **Acce** » (Acceleration).

3. The lift has reached the speed corresponding to the value programmed at « **V2** » (Full speed).

4. The slow-down signal is given, the **V2** signal disappears but **V0** stays along with **MO** or **DE**. The car slows down according to the distance programmed at parameter « **DV2** » (Slow-down distance in V2) to reach **V0**.

5. **V0** is reached, the signal is given, the **V0** and **MO** or **DE** are kept until the stopping point.

6. The stopping point is reached, **V0** disappears but keeping the direction **MO** and **DE** and the transition from **V0** to zero speed start.

7. When zero speed is reach, the Vector Drive electrically stabilises the rotor for the time programmed at parameter « **FrArr** » (Brake time on stopping).

8. The Vector Drive drops the brake by deactivating the brake contactor **FR**. An **L** or **S** contact (STOPR) informs the controller that the movement is finished so that the **MO** or **DE** direction signal can be deactivated and the doors opened.

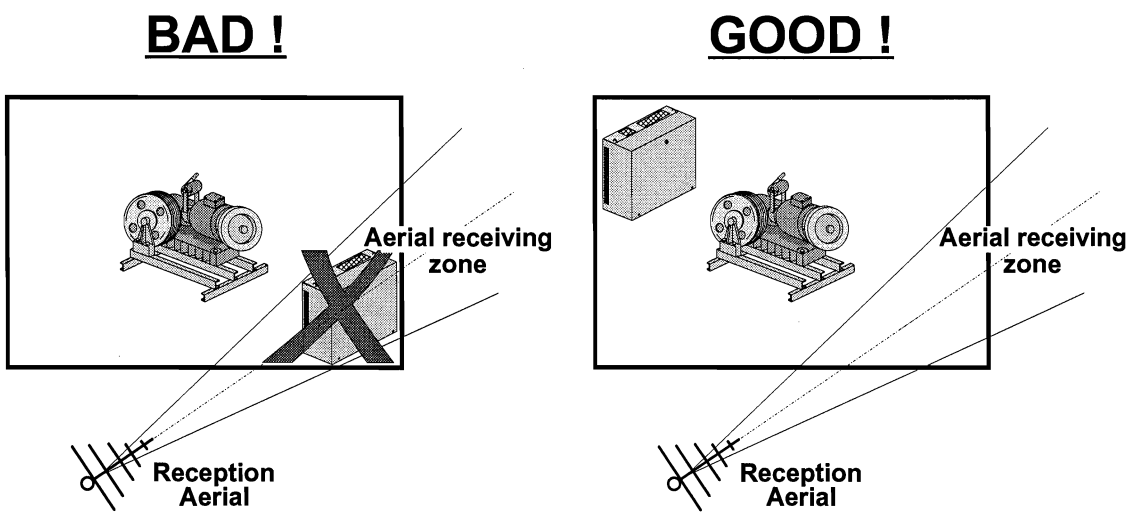
NOTE:

Stages (5), (6), (7) and (8) have been voluntarily exaggerated in order to clarify the drawing.

INSTALLATION OF AUTINOR'S VECTOR DRIVE FOR OTIS MCS 220 M CONTROLLER

CONTROLLER POSITION AND ELECTROMAGNETIC COMPATIBILITY

When the machine room supports or is near a **radio or television reception aerial**, do not put the controller cabinet in the aerial receiving zone (figure 1).



Placing the frequency drive outside the aerial receiving zone

If you can not find a suitable place for the frequency drive cabinet, **get the aerial moved!** If that is not possible, contact ***AUTINOR*** who will decide along with the building owner, what measures need to be taken according to the EN 12015 and EN 12016 Standard for *lifts, escalators and passengers conveyors.*

Use of differential circuit breakers with Autinor's Frequency Drives

First of all as a reminder:

- The low voltage directive explicitly states that electrical lift installations are excluded from its field of application and so the standards relating to electrical installations only applies as far as the input terminals of the main lift installation switch (cf EN 81 § 13.1.1.2) ;
- Nevertheless the safety of all people must be ensured, and so to do this, we rely as much as possible on the detail of C 15-100 taking into account the imperatives concerning lifts.

The standard C 15-100 § 532.2.1.3 states that:

« *Les dispositifs de protection à courant différentiel-résiduel doivent être choisis et les circuits électriques divisés de telle manière que tout courant de fuite à la terre susceptible de circuler durant le fonctionnement normal des appareils ne puisse provoquer la coupure intempestive du dispositif.* »

AUTINOR frequency drives have a normal current leakage when loaded around 100 mA. We therefor recommend the Lift installation be supplied through a differential circuit breaker with a differential current (= « sensitivity ») $I\delta_n$ = 300 mA.

What is more, C 15-100 states that for electrical installations cabled conform to the TT diagrams (installations powered by the public electricity network), people should be protected against indirect contacts by differential residual current circuit breaker which implies the following of the relation ship which links the circuit breaker differential current $I\delta_n$ to the maximum conventional voltage of the U_L contact and of the earthing socket resistance:

$$I\delta_n * R_A \leq U_L \text{ (NF C 15-100 § 532.2.4.2)}$$

If the earthing socket resistance exceeds 100 Ω, the electrician may use an S type differential circuit breaker with a differential current of 300 mA, which will ensure protection against indirect contact for an earthing socket resistance of up to 167 Ω. You should nevertheless ensure that a « full load » movement does not break the circuit at the wrong moment.

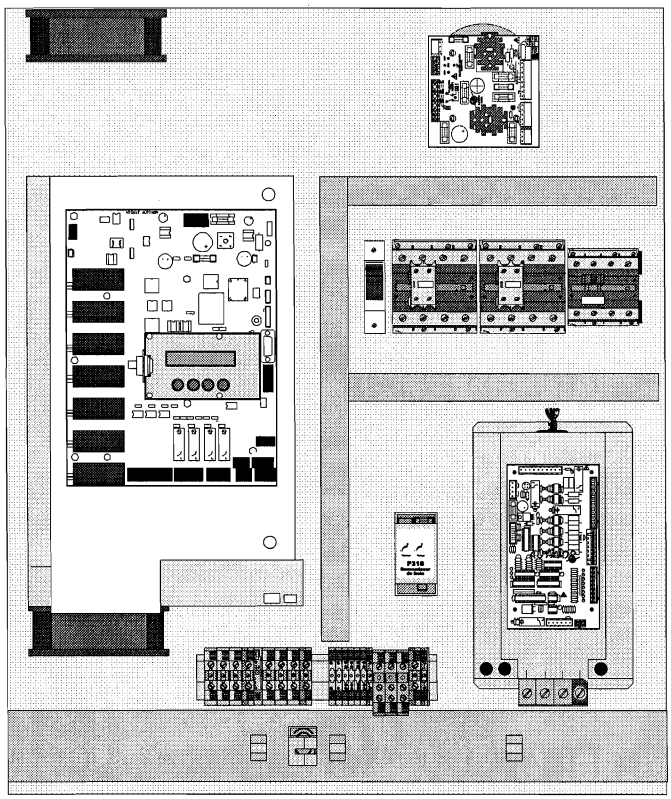
GENERALITIES

The main function of the complete product is, from an **OTIS controller MCS 220 M**, to drive an ***AUTINOR*** **'s Vector Drive** (PWM principle), itself driving an ***AUTINOR*** gearless motor ("VARIEL").

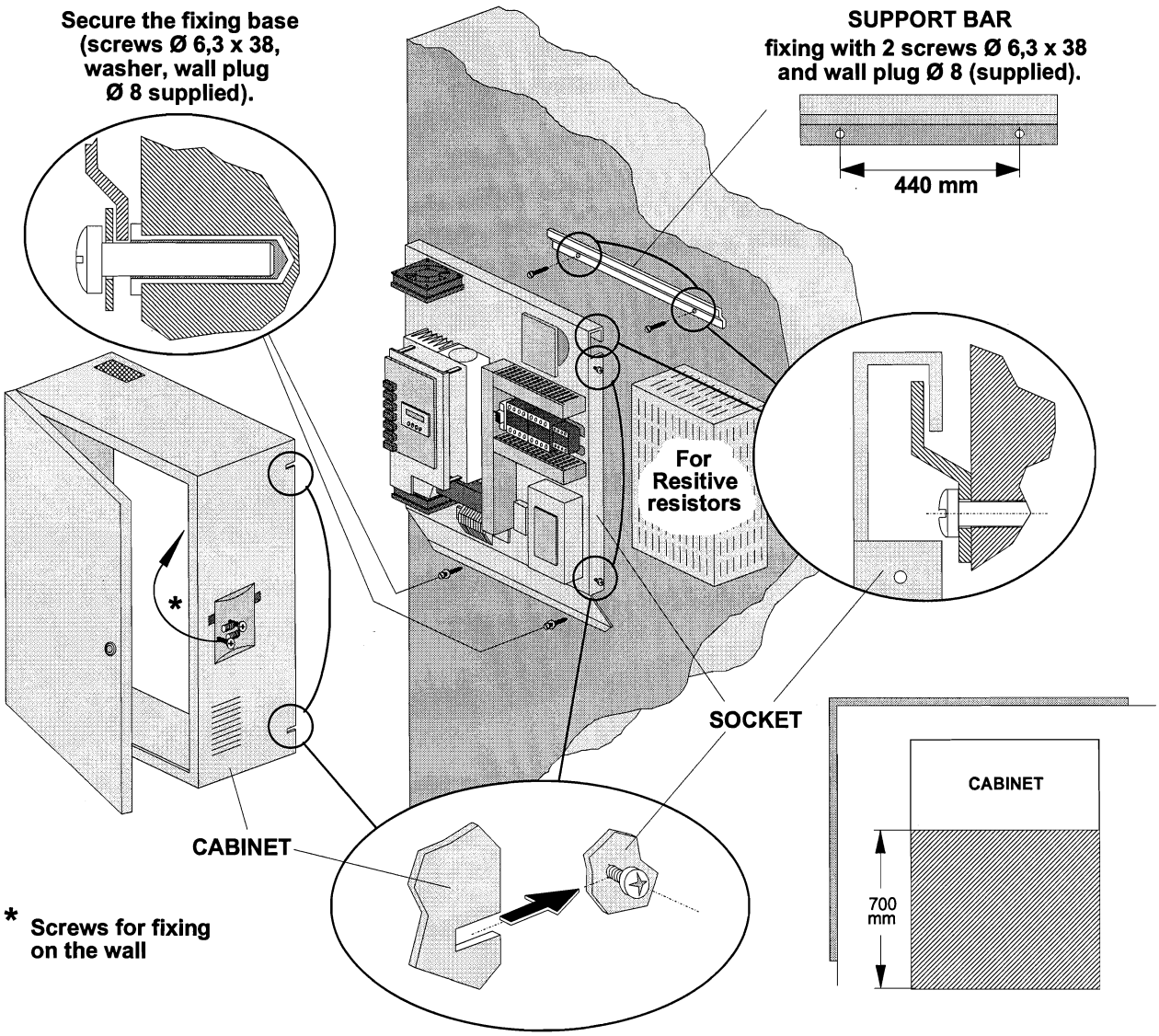
The communication protocol between the **OTIS controller** and the ***AUTINOR*** **'s Vector drive** is the same as the one between the **OTIS controller** and the **OTIS drive** called 0VF20.

This product is composed of:

- a **VVF drive** adapted to geared motor, with V/f speed control or Vector control (the model of drive depends on the rated power) and to asynchronous gearless motor, with a software especially adapted based on vector control principle,
- a transformer **440 VA** (with a **BG22** board), destined to supply the brake and the **OT01** interface board,
- a **P318** module supplying the brake (**180 VDC** during opening and **60 VDC** during maintaining phase): this module is especially adapted to "VARIEL",
- 3 contactors: **S**, **L** and **FR**,
- a **3 phase network current filter**,
- an **OT01** interface board between **OTIS controller MCS 220 M** and ***AUTINOR*** **'s Vector Drive.**



INSTALLATION OF THE CONTROL PANEL


Secure the fixing base (screws Ø 6,3 x 38, washer, wall plug Ø 8 supplied).
SUPPORT BAR fixing with 2 screws Ø 6,3 x 38 and wall plug Ø 8 (supplied).
440 mm
For Resitive resistors
SOCKET
CABINET
CABINET
700 mm
* Screws for fixing on the wall

Cabinets dimensions:

- **Models 2, 3, 4, 5, 6: L = 562 mm, H = 680 mm, P = 285 mm, Weight = app 40 Kg**
- **Models 7, 8 and 9: L = 800 mm, H = 1200 mm, P = 400 mm, Weight = app 70 Kg**
- **Resistors cabinet: L = 600 mm, H = 320 mm, P = 250 mm, Weight = to ?? Kg**

NB:

For the purpose of delivery, the support bar is fixed to the studs for fixing the cabinet. Entry for wiring and trunking is at the bottom.

Don't forget than the EN-81-1 Standard § 6.3.2.1:

6.3.2.1 The dimensions of machine rooms shall be sufficient to permit easy and safe working on equipment, especially the electrical equipment.

In particular there shall be provided at least a clear height of 2 m at working areas, and:

a) a clear horizontal area in front of the control panels and the cabinets. This area is defined as follows:

1) depth, measured from the external surface of the enclosures, at least 0,70 m;

2) width, the greater of the following values: 0,50 m or the full width of the cabinet or panel;

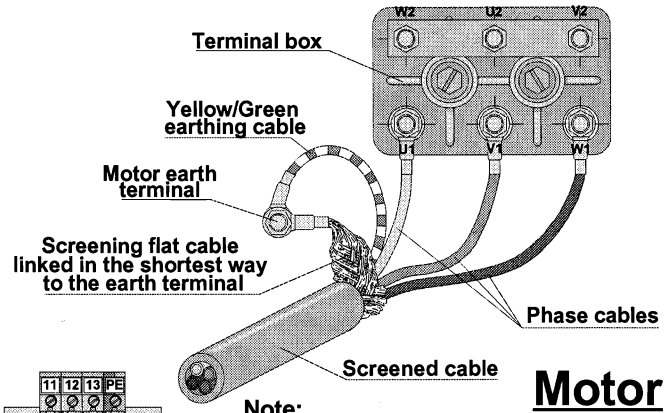
b) a clear horizontal area of at least 0,50 m x 0,60 m for maintenance and inspection of moving parts at points where this is necessary and, if need be, manual emergency operation (**12.5.1**).

CONNECTIONS

	INCREMENTAL ENCODER		
	STEGMAN	HENGSTLER	OTHERS
+24	RED	RED	10 to 30 VCC
0V	BLUE	BLACK	0 VCC
CAI	WHITE	WHITE	CHANNEL A
CBI	PINK	GREEN	CHANNEL B

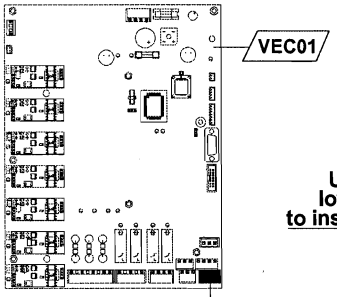
Cut the wires which are not used. Screening cable do not connect.
Wires CAI and CBI should be crossed
in dependance of your configuration.

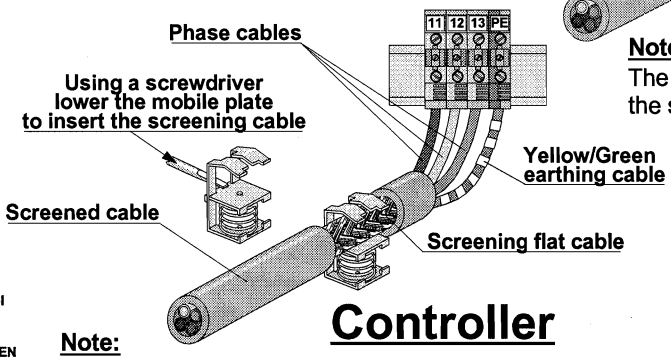
Conventional connection

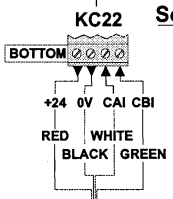


Motor

Note:
The cables should only be separated from the screening once inside the terminal box.




11 12 13 PE
Phase cables
Using a screwdriver lower the mobile plate to insert the screening cable
Yellow/Green earthing cable
Screened cable
Screening flat cable

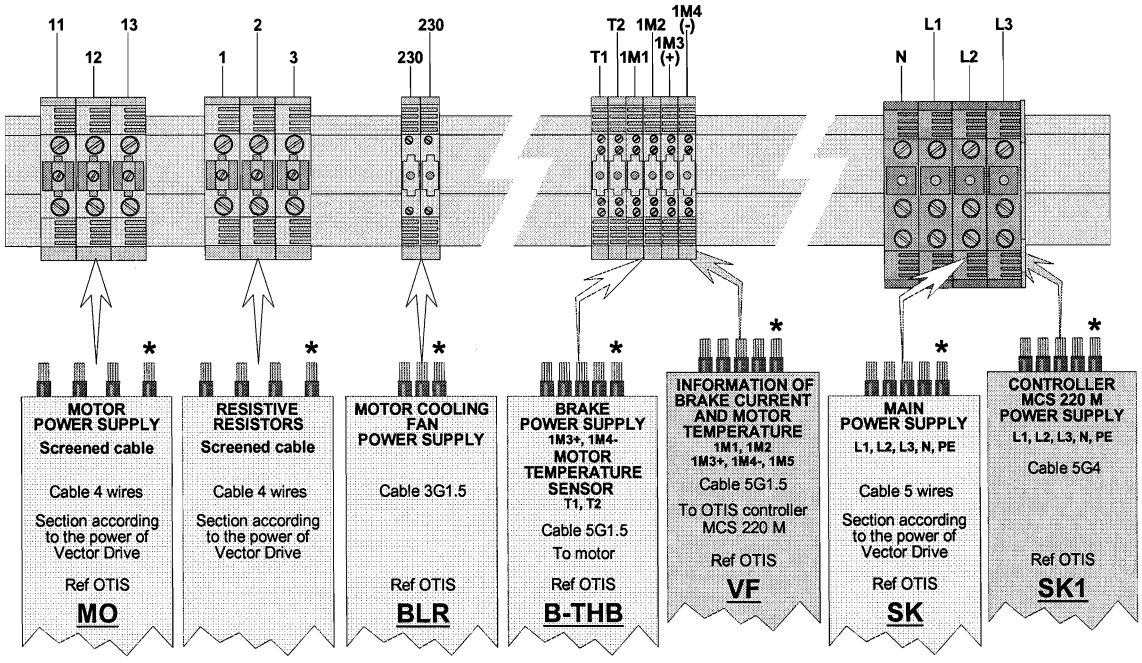


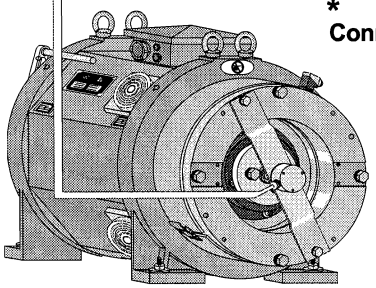
Controller

Note:
Keep the motor cable as far apart from the power cable as possible, inside as well as outside the controller.

Concerning the Frequency Drive
In order to reduce disturbances a screened cable (LIYYCY type, minimal length of cable: 3m50) must be used.

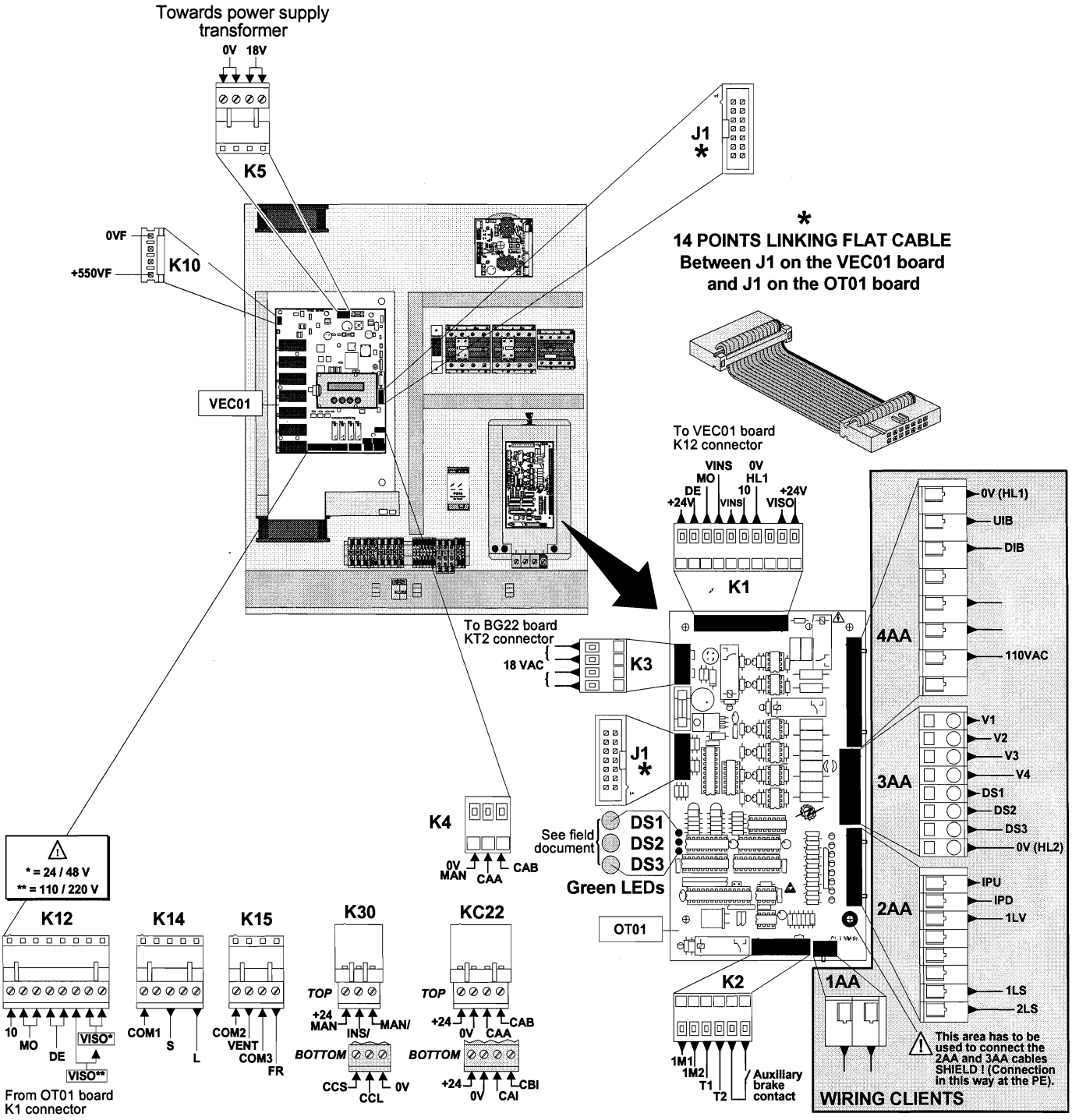
To be completely efficient the screening must be connected at the same time to the controller metal casing and to the motor metal housing.



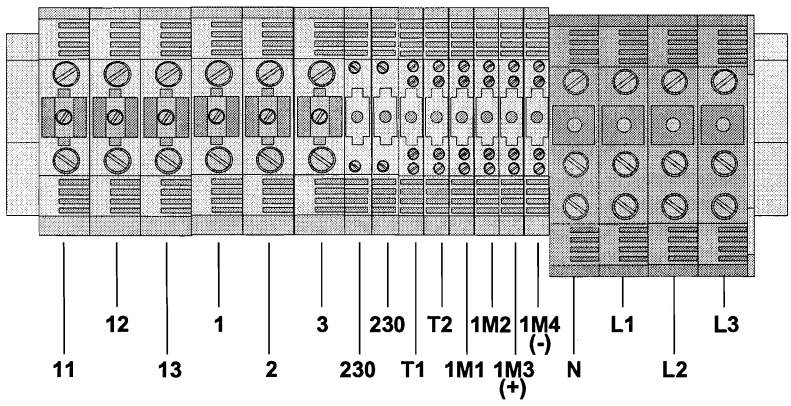


* Connection of the PE on the earth collecting bar fixed on the socket

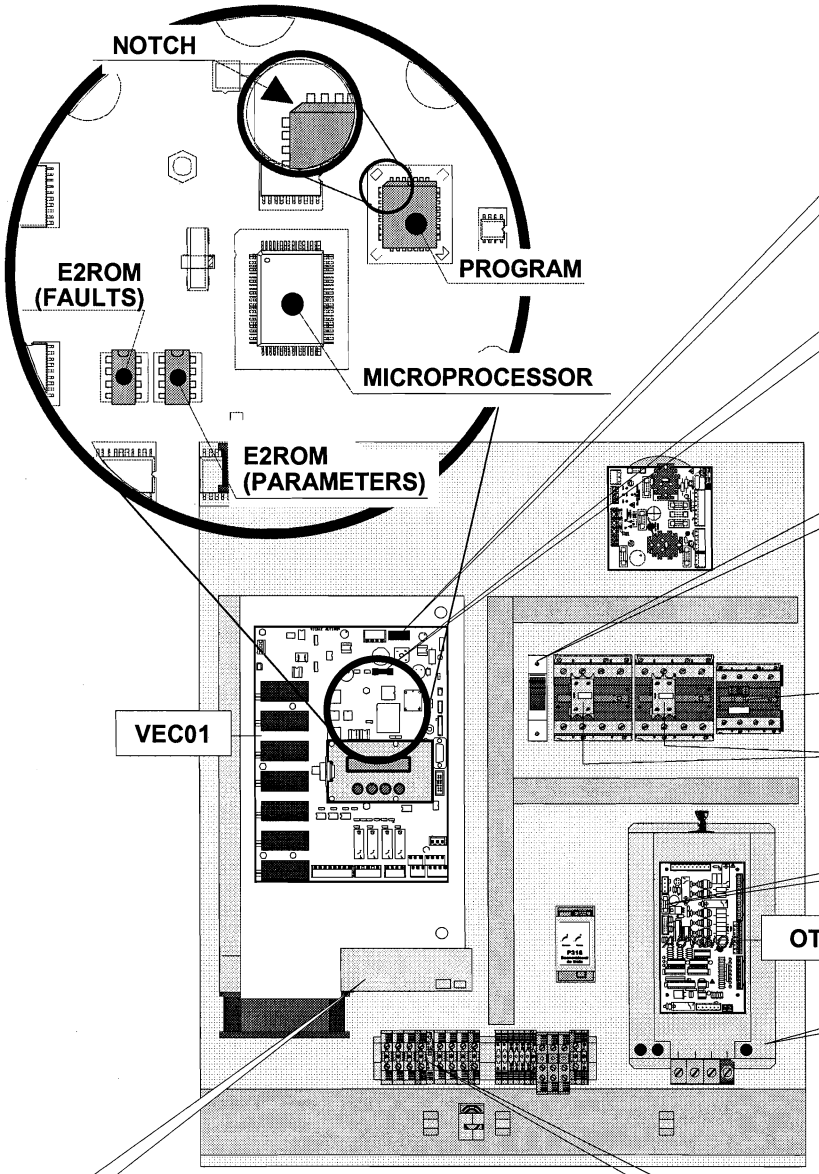
LOCATION OF TERMINAL BLOCKS



Electromechanical Terminal Rail



LOCATION AND FUNCTION OF FUSES



FU1 (VEC01)
ELECTRONIQUE AND SIGNAL POWER SUPPLY PROTECTION
2A-250 V dim: 5 X 20 TIME LAG

SPARE FUSE
for FU1
2A-250V dim: 5x20 TIME LAG

FU+
DC PROTECTION BY PROTISTOR DEPENDING ON THE DRIVE MODEL.
(SEE TABLE BELOW)
The position of FU+ is depending of the V.F. Model

BRAKE CONTACTOR

POWER CONTACTORS

FU1 (OT01)
ELECTRONIQUE AND SIGNAL POWER SUPPLY PROTECTION
2A-250 V dim: 5 X 20 TIME LAG

3 PHASE NETWORK CURRENT FILTER
380 V dim: 6 X 32

	GE 32	*LA 32 - TB 191*
L1P	**6A**	**4A**
L2P	**6A**	**4A**
L3P	**2A**	**2A**

FuVe
TRANSISTOR COOLING FAN PROTECTION
0,5A-250 V dim: 5 X 20 QUICK ACTING

VEC12

MOTOR CURRENT MEASURING DEVICE

If you should replace the motor current measuring device VEC12
It is IMPERATIVE to followed the same path wire

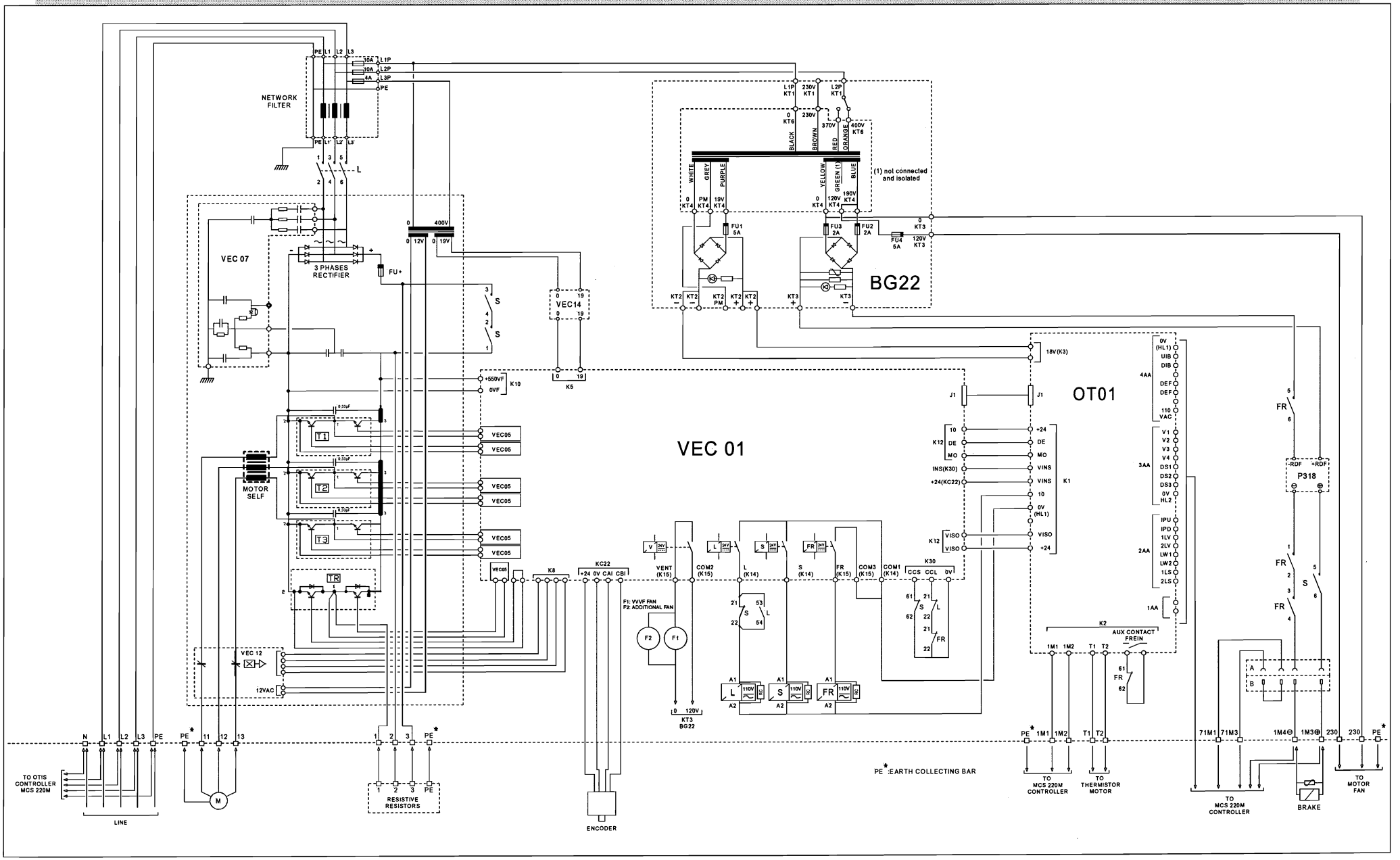
WARNING!!!

Ⓡ

ONLY USE PROTISTORS CAPABLE OF WHITHSTANDING 600V AND SPECIALLY CONCEIVED TO PROTECT SEMI-CONDUCTORS.
THE USE OF OTHER FUSES IS DANGEROUS AND COULD DAMAGE THE TRANSISTORS IF THERE IS A POWER SURGE OR SHORT CIRCUIT.

MODEL	PROTISTOR Ⓡ
N°2	25 A (10x38)
N°3	40 A (14x51)
N°4	50 A (14x51)
N°5	63 A (22x58)
N°6 / N°7	80 A (22x58)

ELECTROMECHANICAL WIRING DIAGRAMS



FREQUENCY DRIVE PARAMETER / DIAGNOSTIC COMMUNICATION DEVICE

This chapter contains information which will allow you to adapt the equipment to the specific conditions of the lift on which it is installed.

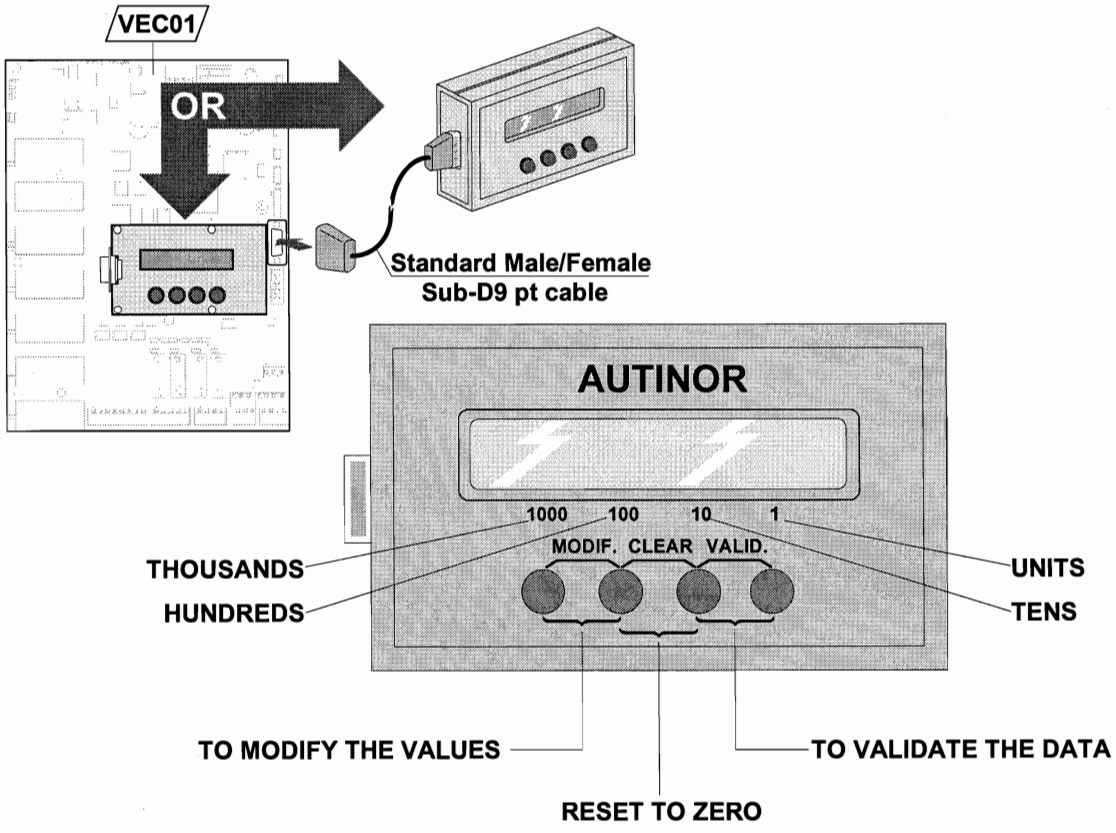
This adaptation is controlled by ***parameters***, which you can modify according to your needs using the removable parameter / diagnostic communication device as described below in the paragraph Accessing the parameters.

The parameters are memorised in a particular type of chip called an ***EEPROM*** [1] (or E2PROM) which **keeps the information even when the equipment is switched off.**

Each parameter is linked to an **abridged name** and an **address** which corresponds to the position at which it is memorised in the EEPROM chip.

Accessing the parameters

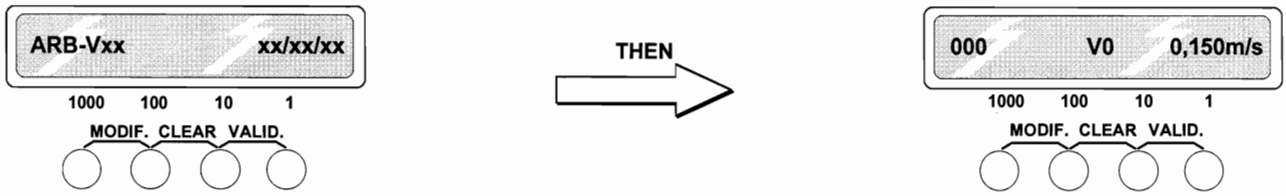
As mentioned above, you can see and modify the parameters using the parameter/diagnostic communication tool; this consists of a 16 characters LCD display with four push buttons, which is connected, by a standard Male/Female Sub-D 9 pt cable, or fixed on the **VEC01** board.



1 EEPROM stands for *Electrically Erasable Programable Read Only Memory*.

To access the parameters and the input-output information

Power-up the equipment, the display shows:



Each time you press **1** the value shown will increase by **1**.

Each time you press **10** the value shown will increase by **10**.

Each time you press **100** the value shown will increase by **100**.

Each time you press **1000** the value shown will increase by **1000**.

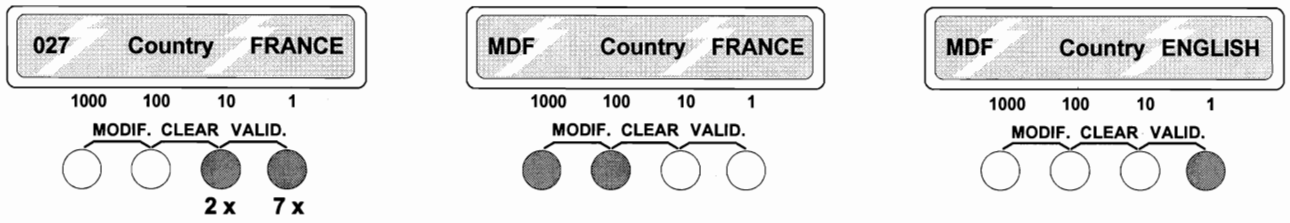
Choosing the language

The parameter/diagnostic communication device is preset to the language of the destination country.
There are four options which appear at address **027** as follows:
FRANCE, ENGLISH, DEUTSCH, ESPAGNOL.

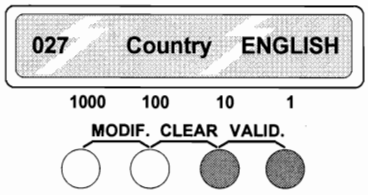
Press twice button **10**, then 7 times button **1,** for address **027**

Press both **MODIF** buttons at the same time

Press button **1** and choose the required language.



Register the required language by pressing both **VALID** buttons at the same time

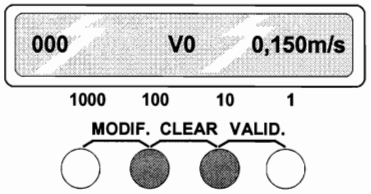


The language in our example is **English**

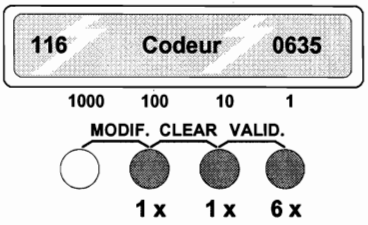
Other example:

Viewing the incremental encoder impulses (see page 27).

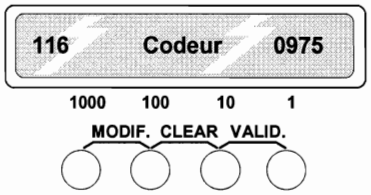
Reset the display to address **000** by pressing the **CLEAR** buttons simultaneously



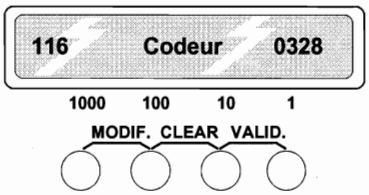
Display address **116** using buttons **100**, **10** and **1**



The value displayed at address **116** increases when the rotor turns in the **upwards** direction

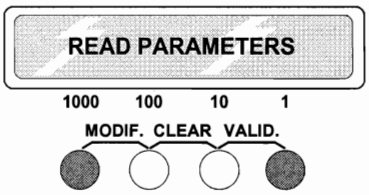


The value displayed at address **116** decreases when the rotor turns in the **downwards** direction

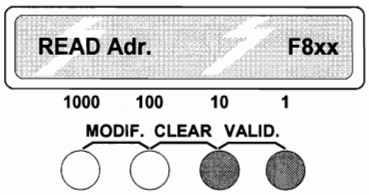


Transfer of the settings included in the VVVF toward the diagnostic tool.

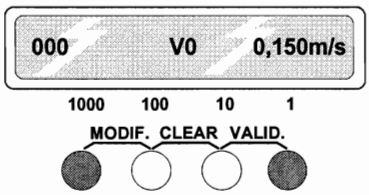
Press the 2 end buttons to make « **READ PARAMETERS** » appear.



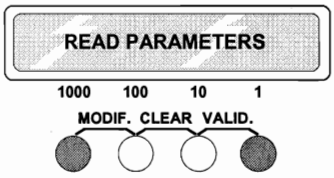
Validate by pressing the « **VALID** » buttons ..... Transfert

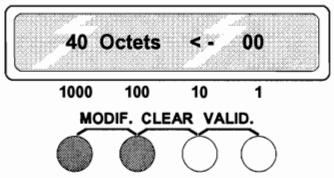


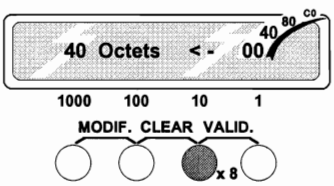
Press the 2 end buttons to return to normal mode

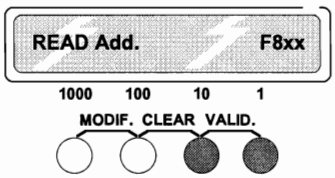


*Note: You can memorise in the E²ROM of the box, the parameters of 4 VVVF drive, respectively at the addresses **00**, **40**, **80** or **C0**. For that, press the 2 end buttons than press « MODIF » button and modify the right number to **00**, **40**, **80** or **C0** with the 10 button than press « VALID » to validate.*







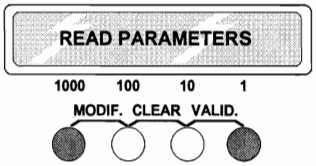


Ex: Copy the VVVF parameters at address 80 in the box

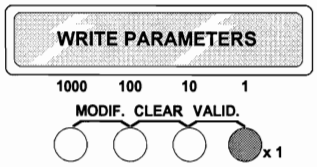
Transfer of the settings included in the diagnostic tool toward the VVVF.

⚠ ***WARNING:** this operation overwrite on the parameters included in the VVVF drive* ⚠

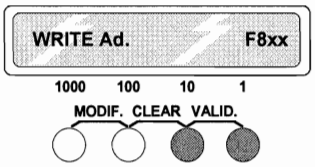
Press the 2 end buttons, you read, « **READ PARAMETERS** »



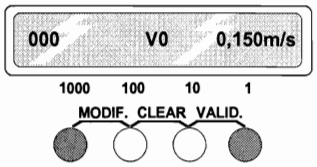
Display « **WRITE PARAMETERS** » using button **1**



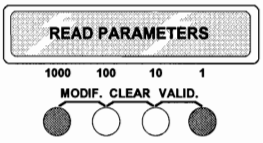
Validate by pressing the « **VALID** » button ..... Transfert

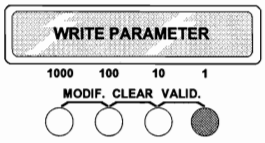


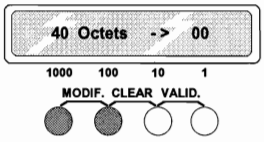
Press the 2 end buttons to return to normal mode

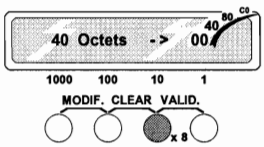


Note: You can transmit the VVVF parameters in the E²ROM of the box at addresses 00, 40, 80 or C0 in the box VEC03. For that, press the 2 end buttons, than on the button 1 to pass on « WRITE » mode than press the 2 « MODIF » buttons and than modify the right number at 00, 40, 80 or C0 with the 10 button than press « VALID » to validate.

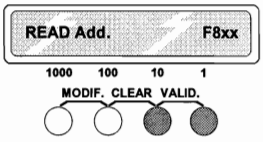






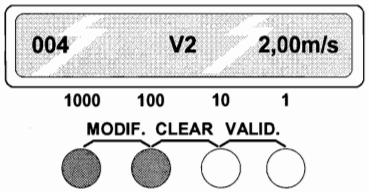


Ex: Copy the Parameters memorised at address 80 in the box to the VVVF



To remind yourself of the address

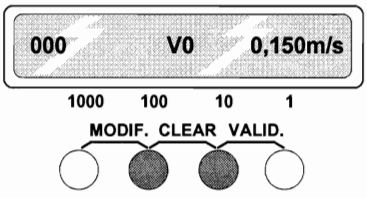
If you forget the address you are changing, or the previous value shown, just press both **MODIF** buttons.



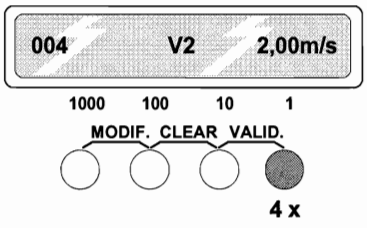
To change the parameters in decimal mode

After selecting the required language (see page 22) you can access the parameters and change them if required.

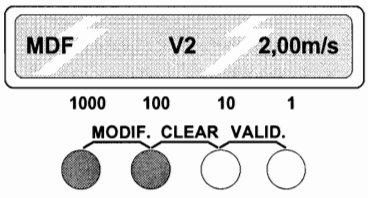
Reset the display by pressing both **CLEAR** buttons at the same time



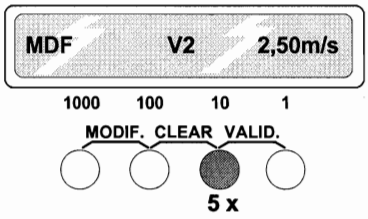
To change the **V2** speed for example, display address **004** by pressing button **1**



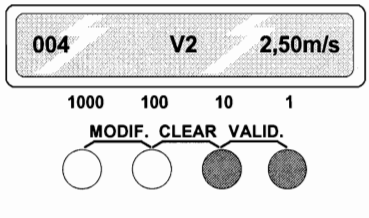
Press both **MODIF** buttons at the same time



Press button **10** 5 times to obtain the desired speed



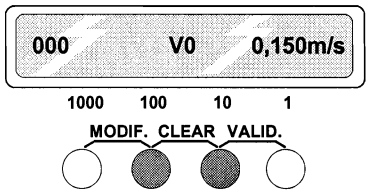
Register the new speed by pressing both **VALID** buttons at the same time



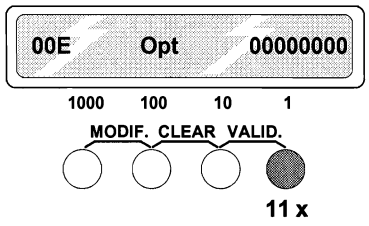
To change the parameters in segment mode

You can access the options using segments and change them if so desired.
Seg0 : IG, **Seg1 :** PESECH, **Seg2 :** NOBAND, **Seg3 :** BAND2(step of 2.66),
Seg4 : RETSEC, **Seg5 :** APPDIR, **Seg6 :** DFT65°, **Seg7 :** ML220V

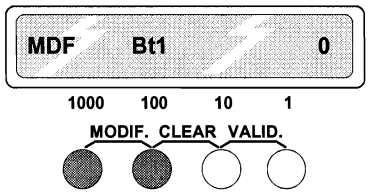
Reset the display by pressing both **CLEAR** buttons at the same time



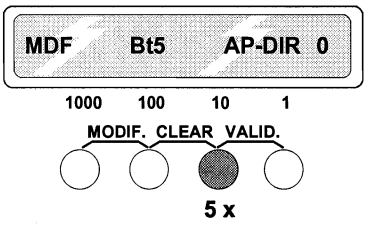
Display address **00E** by pressing button **1**



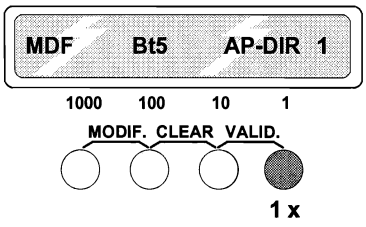
Press both **MODIF** buttons at the same time



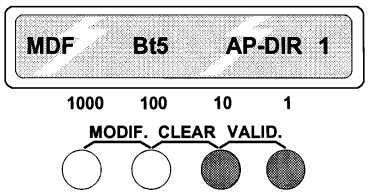
Press button **10** to obtain the required segment example: **Direct approach.**



Press button **1** to activate segment **5.**



Register the new data in the memory by pressing both **VALID** buttons at the same time.

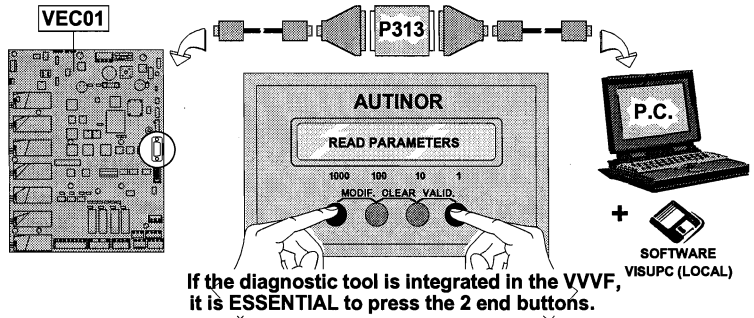


VISU P.C. program

You can visualise the parameters, inputs/outputs, variables as well as the function graphs on a P.C., using the P313 interface board and the VISU P.C. program.

To do this, connect the P313 set and push the 2 end buttons of the integrated diagnostic tool VEC03. In order to make « **READ PARAMETERS** » appear on the display.

At the end on the P.C. visualisation, push the 2 end buttons.



You can visualise:

- The theoretical graph:..... F912
- The real graph: F910
- The capacitor voltage: F904
- The efficient motor current:..... F908

POWER-UP FOR INITIAL MOVEMENT (1/2)

STOP ALL DISPLACEMENTS OF THE LIFT (see OTIS controller documentation).

Switch on the power:

- **The LEDs showing the transistors are green.**

CUT THE SAFETY LANE!

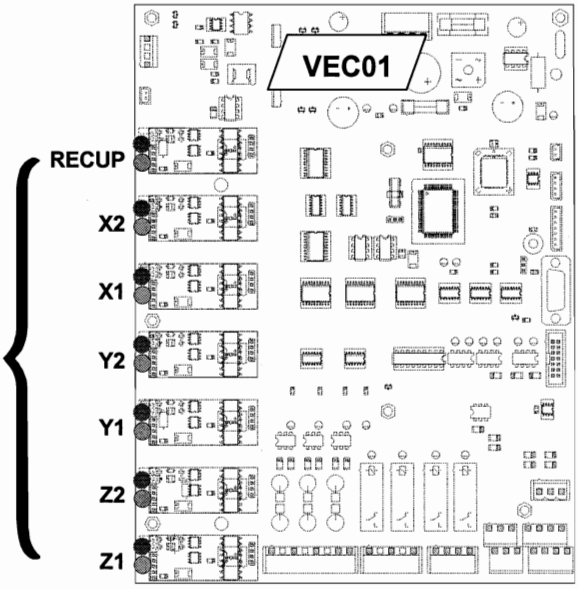
Please see page 21 for the description of how to use the frequency drive parameter/diagnostic communication device

Checking the transistor control:

- **Check with address 104 that the tension read fell down to less than 50 volts.**

1) At address 041, write 55

041	TEST	55

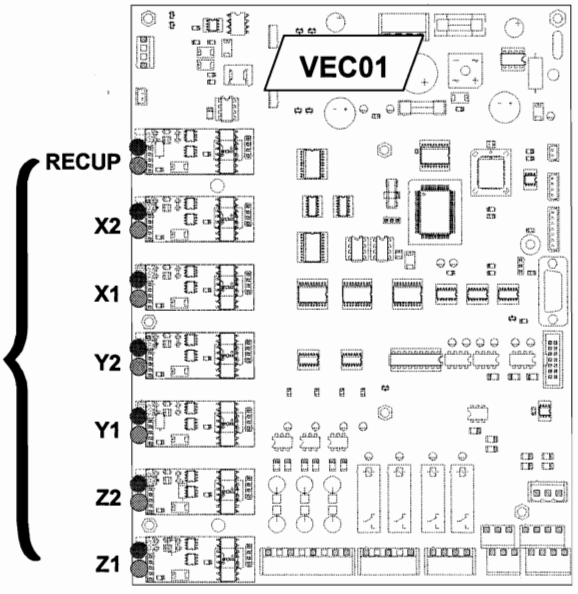


The green LED " RECUP " become out,

The LEDs red light.

2) At address 041, write 00

041	TEST	00



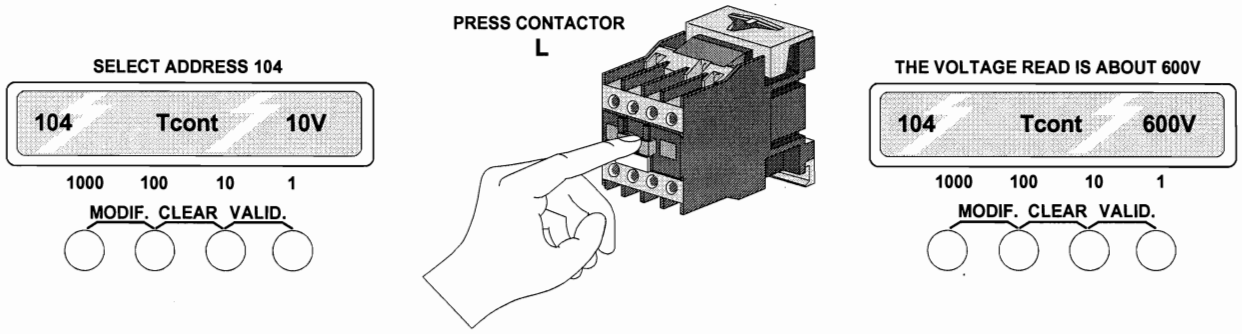
The LEDs red become out,

The LEDs green light.

POWER-UP FOR INITIAL MOVEMENT (2/2)

To check the capacitor voltage:

CUT THE SAFETY LANE!



To check the VEC12 current measuring device:

- Check at addresses **12A** and **12E** that the value is between 500 and 524. If the values are not coherent, check the connection of the **K8** connector of the **VEC01** board.

To check the incremental encoder connection:

- Check at address **116** on the parameter/diagnostic communication device (see page 23) that the number of impulses **increases** as you turn the rotor in the **direction** corresponding to **up**, and **decreases** in the **direction** corresponding to **down**. Turn the rotor **gently** by hand (see documentation **INSTALLATION AND MAINTENANCE OF "VARIEL"**, page 41, **INDEPENDENT ELECTRIC BRAKE RELEASE CONTROL**).

If the number of impulses changes in the wrong direction, inverse the **CAI** and **CBI** wire on the **KC22 (bottom)** connector of the **VEC01** board.

Check that the parameters are coherent (see page 29):

RECONNECT THE SAFETY LANE!

Try an up movement and then a down movement, and check that the lift starts off in the required direction.

Possible faults:

- **102** : ***Gap*** between the ***advised*** and ***real speed*** of more than ***15%*** in ***Slow Speed.***
- **100** : Motor ***over-intensity:***
  - ***Cross*** two of the motor phases.
  - Check that the encoder is **wired correctly**.

See page 54 **"TABLE OF FAULT CODES"**.

LIST OF

- ***PARAMETERS***
- ***INPUTS***
- ***OUTPUTS***
- ***FAULT CODES***

IN

AUTINOR'S VECTOR DRIVE

FOR

OTIS MCS 220 M CONTROLLER

WITH VARIEL

EXPLANATION OF PARAMETERS (1/12)

• Address 000: V0, Set-up speed.

At this address is programmed the set-up speed.

Units:	metres per second (m/s)		
Mini:	0,001 m/s	**Maxi:**	0,199 m/s
Factory value:	0,15 m/s		

• Address 001: ISO, Relevelling speed.

At this address is programmed the relevelling speed (not used for the time being).

Unit:	metres per second (m/s)		
Mini:	0,001 m/s	**Maxi:**	< V0
Factory value:	0,020 m/s		

• Address 002: INS, Inspection speed.

At this address is programmed the Inspection speed.
This speed is taken into account when the inspection input (INS/ on K30) is activated (VINS Led lit).

Unit:	metres per second (m/s)		
Mini:	0,20 m/s	**Maxi:**	0,60 m/s
Factory value:	0,40 m/s		

• Address 003: V1, Intermediate speed V1.

At this address is programmed the Intermediate speed V1.

Unit:	metres per second (m/s)		
Mini:	> INS	**Maxi:**	< V2
Factory value:	Jobsite specificity		

EXPLANATION OF PARAMETERS (2/12)

• Address **004**: **V2**, Full speed V2.

At this address is programmed the Full speed.

Unit:	metres per second (m/s)		
Mini:	> V1	**Maxi:**	03,50 m/s
Factory value:	Jobsite specificity		

• Address **006**: **Diap**, Traction pulley diameter.

At this address is programmed the traction pulley diameter divided by the roping (1 if direct traction, 2 if 2/1 roping,...).

Unit:	metre (m)		
Mini:		**Maxi:**	
Factory value:	Jobsite specificity		

• Address **008**: **DV2**, Slow-down distance on V2.

At this address is programmed the slow-down distance necessary when in full speed V2.

Unit:	metre (m)		
Mini:	0,300 m	**Maxi:**	9,999 m
Factory value:	Jobsite specificity		

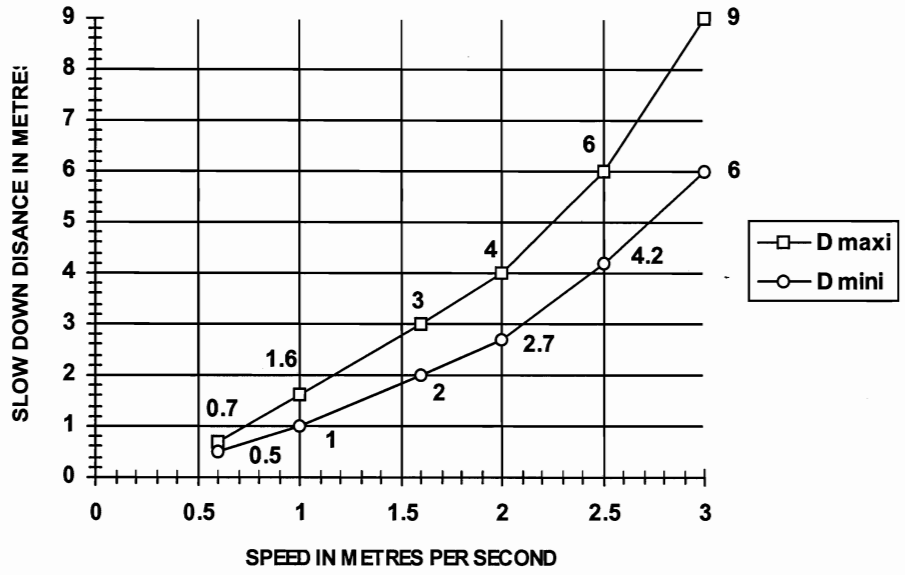


Figure 2
Slow-down distance value (DV2) in fact of the full speed (V2)

Remark:
See information in field documentation

EXPLANATION OF PARAMETERS (3/12)

• Address **00A**: **Acce**, Acceleration.

At this address is programmed the time to reach V2 speed.

Unit:	second (s)		
Mini:	02,0 s	**Maxi:**	9,90 s
Factory value:	Jobsite specificity		

• Address **00B**: **FrArr**, Brake time on stopping.

At this address is programmed the time to stabilise the rotor before the brake is dropped.

Unit:	second (s)		
Mini:	0,50 s	**Maxi:**	1,00 s
Factory value:	0,5 s		

• Address **00C**: **FrDem**, Brake time on start-up.

At this address is programmed the time during which the rotor is stabilised to allow the brake to lift correctly before start-up.

Unit:	second (s)		
Mini:	0,00 s	**Maxi:**	2,00 s
Factory value:	0,5 s		

• Address **00D**: **Thermi**, Motor thermistor.

At this address is programmed the current at which the electronic thermical relay is activated.

Unit:	Ampere (A)		
Mini:	1 A	**Maxi:**	255 A
Factory value:	For V1 in **Y** connection 30A, in Δ 50A For V2 in **Y** connection 50A, in Δ 85A For V3 in **Y** connection 80A, in Δ 135A		

The thermal relay switches switch off if the motor intensity (Imot) is higher than the thermal intensity (Ith) for longer than 3,5 seconds or if the motor intensity (Imot) is 1,5 x higher than the thermal intensity (Ith).
Imot can be seen at the address **108**, page 46.

EXPLANATION OF PARAMETERS (4/12)

- Address **00E**: **Opt**, Option.

Segment **7** : **ML220V**, MLIft 220V.

00E Opt **00000100**

Segment 7 is programmed ON when the Vector drive is on a **three phase 220V network** (Otis MCS 220 M).
Segment 7 is programmed OFF when the Vector drive is on a **three phase 400V network**.

Segment **6**: **D65°**, Fault T°>65°.

00E Opt **01000000**

Segment 6 is programmed ON to increase the radiator temperature detection threshold from 60°C to **65°C**.
Segment 6 is programmed OFF to keep the detection threshold at 60°C.

Segment **5**: **APPDIR**, Direct Approach.

00E Opt **00100000**

Segment 5 is programmed ON to remove V0 so that the car can level with direct approach.
Segment 5 is programmed OFF if this is not desired (Otis MCS 220 M).

Segment **4**: **RETSEC**, Delay on safety contactor.

00E Opt **00010000**

Segment 4 is programmed ON to filter the rebound of the S contactor contacts on start-up, and when these contacts are used to cut the motor power supply.

Segment 4 is programmed OFF when the S contacts are not used to control the motor.

Segment **3**: **BAND2**, Slotted tape with a step of 2.66mm.

00E Opt **00001000**

Segment 3 is programmed ON when the VECTOR DRIVE is associated to an AUTINOR controller using the slotted tape with a step of 2.66mm.

Segment 3 is programmed OFF if this is not used (Otis MCS 220 M).

Segment **2**: **NOBAND**, No Slotted tape Otis.

00E Opt **00000100**

Segment 2 is programmed ON when the VECTOR DRIVE is associated to an other controller than AUTINOR (Otis MCS 220 M).

Segment 2 is programmed OFF when the VECTOR DRIVE is associated to an AUTINOR controller using the slotted tape.

Segment **1**: **PESECH**, Load weighing.

00E Opt **00000010**

Segment 1 is programmed ON when the load weighing is activated.

Segment 1 is programmed OFF when the load weighing is not desired.

Segment **0**: **IG**, Integrator.

00E Opt **00000001**

Segment 0 is programmed ON when the VECTOR DRIVE slip integrator is to be activated.

Segment 0 is programmed OFF if this is not desired (Otis MCS 220 M).

EXPLANATION OF PARAMETERS (5/12)

• Address 00F: RgT°, Temperature Sensor Calibration

At this address is programmed the value for calibrating the thermal sensor.

Unit:	Degrees Celsius		
Mini:	0°C	**Maxi:**	10°C
Factory value:	4°C		

• Address 010: Modele, VECTOR DRIVE Model.

At this address is programmed the VECTOR DRIVE model number. See the sticker on the Plexiglas or on the current measuring device label (VEC12M).

Unit:	None		
Mini:	2	**Maxi:**	9
Factory value:	Jobsite specificity		

• Address 011: Tmor, Transistor Pause time

At this address is programmed the Transistor Pause time in the inverter.

Unit:	µs		
Mini:	1	**Maxi:**	2
Factory value:	1,5 µs		

• Address 012: IFlux, Maximum flux current.

At this address is programmed the maximum flux current.

Unit:	Ampere (A)		
Mini:	000,1 A	**Maxi:**	999,9 A
Factory value:	For V1 in **Y** connection 15A, in Δ 25A For V2 in **Y** connection 20A, in Δ 35A For V3 in **Y** connection 35A, in Δ 60A		

EXPLANATION OF PARAMETERS (6/12)

• Address **014**: **IFmin**, Minimum flux current.

At this address is programmed the minimum flux current. This parameter decreases the motor vibrations at low frequency.

Unit:	Ampere (A)		
Mini:	000,1 A	**Maxi:**	IFlux
Factory value:	For V1 in **Y** connection 15A, in Δ 25A For V2 in **Y** connection 20A, in Δ 35A For V3 in **Y** connection 35A, in Δ 60A		

• Address **016**: **Gliss**, Motor slip.

At this address is programmed the motor slip.

Unit:	percent (%)		
Mini:	02,0 %	**Maxi:**	25,0 %
Factory value:	For V1 and V2: 7%, for V3: 5%		

• Address **017**: **GPfil**, Filter proportional gain.

At this address is programmed the filter proportional gain.

Unit:	None		
Mini:	0	**Maxi:**	20
Factory value:	For V1, V2 and V3: 1		

• Address **018**: **Inerti**, Inertia.

At this address is programmed the inertia.

Unit:	percent (%)		
Mini:	0 %	**Maxi:**	10 %
Factory value:	For V1, V2 and V3: 005 %		

EXPLANATION OF PARAMETERS (7/12)

• Address 019: GPmax, Maximum proportional gain.

At this address is programmed the maximum proportional gain.

Unit:	None		
Mini:	1	**Maxi:**	32
Factory value:	For V1, V2 and V3: 010		

• Address 01A: GPmin, Minimum proportional gain.

At this address is programmed the minimum proportional gain.

Unit:	None		
Mini:	1	**Maxi:**	32
Factory value:	For V1, V2 and V3: 006		

• Address 01B: GImax, Maximum integral gain.

At this address is programmed the maximum integral gain.

Unit:	None		
Mini:	1	**Maxi:**	32
Factory value:	For V1, V2 and V3: 005		

• Address 01C: GImin, Minimum integral gain.

At this address is programmed the minimum integral gain.

Unit:	None		
Mini:	1	**Maxi:**	32
Factory value:	For V1, V2 and V3: 002		

EXPLANATION OF PARAMETERS (8/12)

• Address 01D: TPGDP, Start up temporising gain.

At this address is programmed the start up temporising gain.

Unit:	metres per second (m/s)		
Mini:	100 m/s	**Maxi:**	250 m/s
Factory value:	For V1, V2 and V3: 100 m/s		

• Address 01E: GIDep, Start up integral gain.

At this address is programmed the start up integral gain.

Unit:	None		
Mini:	1	**Maxi:**	20
Factory value:	For V1, V2 and V3: 008		

• Address 01F: GPDep, Start up proportional gain.

At this address is programmed the start up proportional gain.

Unit:	None		
Mini:	1	**Maxi:**	20
Factory value:	For V1, V2 and V3: 002		

• Address 020: TDema, Start up voltage.

At this address is programmed the start up voltage.

Unit:	percent (%)		
Mini:	3 %	**Maxi:**	20 %
Factory value:	For V1 in **Y** connection 10 %, in Δ 6 % For V2 in **Y** connection 11 %, in Δ 6 % For V3 in **Y** connection 10 %, in Δ 6 %		

EXPLANATION OF PARAMETERS (9/12)

• Address 021: GStabi, Stabilisation gain.

At this address is programmed the stabilisation gain.

Unit:	None		
Mini:	1	**Maxi:**	40
Factory value:	For V1, V2 and V3: 20		

• Address 022: FTMax, Maximum voltage frequency.

At this address is programmed the maximum voltage frequency.

Unit:	Hertz (Hz)		
Mini:	16 Hz	**Maxi:**	100 Hz
Factory value:	For V1, V2 and V3 in **Y** connection: 40 Hz		

• Address 023: ADFlux, Start up additional flux current.

At this address is programmed the start up additional flux current.

Unit:	Ampere (A)		
Mini:	00.0 A	**Maxi:**	15.0 A
Factory value:	For V1, V2 and V3: 00 A		

• Address 024: NCode, Encoder resolution.

At this address is programmed the encoder resolution.

Unit:	Points		
Mini:	5000 pts	**Maxi:**	5000 pts
Factory value:	For V1, V2 and V3: 5000 pts		

EXPLANATION OF PARAMETERS (10/12)

• Address 026: NPole, Number of motor pole.

At this address is programmed the number of motor pole.

Unit:	None
	12 or 16
Factory value:	For V1: 12, for V2 and V3: 16

• Address 027: Country, Language.

At this address can be programmed the language to be used on the VEC03 parameter/diagnostic communication device.

Possible choice: France, English, Deutsch *, Español

• Address 028 to 031: See "TABLE OF FAULT CODES"

• Address 034: Dem, Number of starts. . => 0 0 0 0 x x x x

At this address, can be read the number of starts carried out by the lift and the 4 strong weight bits can be modified (See item "**Change the parameters**" and "**Clear**" function).

• Address 036: Dem, Number of starts. => x x x x 0 0 0 0

At this address, can be read the number of starts carried out by the lift and the 4 light weight bits can be modified (See item "**Change the parameters**" and "**Clear**" function).

• Address 038: Visu1, Program of visualisation number 1

At this address, can be read the program of visualisation number 1.

• Address 03A: Visu2, Program of visualisation number 2

At this address, can be read the program of visualisation number 2.

• Address 03C: Visu3, Program of visualisation number 3

At this address, can be read the program of visualisation number 3.

EXPLANATION OF PARAMETERS (11/12)

• Address 03E: Visu4, Program of visualisation number 4

At this address, can be read the program of visualisation number 4

• Address 040: Hinten, Inhibition of voltage control.

At this address, can be read the inhibition of voltage control

• Address 041: Test, Transistor test.

At this address, can be written 55 to check the transistors. The green Led "RECUP" become out, the LEDs red light.

• Address 042: Prog, Programme type.

At this address, can be read the programme type.

ARB (ARBre lent) Gear Less.

• Address 043: TMan, Type of Controller, or for OTIS, Speed information output

At this address, the type of controller associated with the VECTOR DRIVE can be read.

Normal (AUTINOR Controller or with a VEC06 interface board),
1Vit (1 speed controller), **2Vit** (2 speed controller)

For **OTIS MCS 220 M controller**: Speed information output on **OT01** board if > to 0, 30 m/s.

• Address 044: Mcode, Memorisation of a personal code number.

At this address can be memorised a personal code number to program against all chance intervention. The equipment set with the factory code **0000** allowing complete and permanent access to the set of settings.

After programming your code (Don't forget to take note of it), the address **044** disappears. If you want to modify the settings, enter your Code at the address **046**.

• Address 046: Code, Access Code.

At this address, enter your Code to unlock the address **044** in order to modify the setting and/or change the memorised code.

EXPLANATION OF PARAMETERS (12/12)

- Address **04C**: **Ipes**, Starting weighing current (empty, IPes = ###,# A).

At this address, can be read the starting weighing current.

- Address **04E**: **K-pes**, Weighing coefficient.

At this address, can be read the weighing coefficient.

EXPLANATION OF INPUTS (1/2)

- Address **100**: **En1**, Inputs 0 to 7.

Segment **7**: NOT USED. — 100 En1 **10000000**

Segment **6**: **V2**, Speed V2. (Full speed) — 100 En1 **01000000**

Indicates the State of the input for speed **V2**.
Segment **6 lights up** when the lift is required to move at speed **V2**.
Segment **6** is not lit otherwise.

Segment **5**: **V1**, Speed V1. (Intermediate speed) — 100 En1 **00100000**

Indicates the State of the input for speed **V1**.
Segment **5 lights up** when the lift is required to move at speed **V1**.
Segment **5** is not lit otherwise.

Segment **4**: **V0**, Speed V0. — 100 En1 **00010000**

Indicates the State of the input for speed **V0**.
Segment **4 lights up** when the lift is required to move at speed **V0**.
Segment **4** is not lit otherwise.

Segment **3**: **INS**, Inspection speed. — 100 En1 **00001000**

Indicates the State of the **inspection** input.
Segment **3 lights up** when the lift is required to **move on inspection**.
Segment **3** is not lit otherwise.

Segment **2**: **VISO**, Relevelling speed. — 100 En1 **00000100**

Indicates the State of the **relevelling** input. (VISO+ & VISO-)
Segment **2 lights up** when the lift is required to **relevel**.
Segment **2** is not lit otherwise.

Segment **1**: **DE**, Down. — 100 En1 **00000010**

Indicates the State of the **Down** input.
Segment **1 lights up** when the lift is required to **go down**.
Segment **1** is not lit otherwise.

EXPLANATION OF INPUTS (2/2)

Segment **0**: **MO**, Up. | 100 En1 **00000001**

Indicates the State of the **Up** input.
Segment **0 lights up** when the lift is required to **go up**.
Segment **0** is not lit otherwise.

- Address **102**: **En2**, Inputs 0 to 7.

Segment **7**: NOT USED. | 102 En2 **10000000**

Segment **6**: NOT USED. | 102 En2 **01000000**

Segment **5**: **CCL**, L Contactor Check. | 102 En2 **00100000**

Indicates the State of the **Line** Contactor.
Segment **5 lights up** when the **Line** contactor is **de-energised**.
Segment **5** it is not lit when the **Line** contactor is **energised**.

Segment **4**: **CCS**, S Contactor Check. | 102 En2 **00010000**

Indicates the State of the **Safety** Contactor.
Segment **4 lights up** when the **Safety** contactor is **de-energised**.
Segment **4** it is not lit when the **Safety** contactor is **energised**.

Segment **3**: NOT USED. | 102 En2 **00001000**

Segment **2**: NOT USED. | 102 En2 **00000100**

EXPLANATION OF OUTPUTS

- Address **101**: **Sor**, Outputs 0 to 7.

Segment **7**: **RISO**, Re-levelling Fault Relay.

101 Sor **10000000**

Indicates the State of the **re-levelling fault relay** output (**RISO** on **VEC06** board or controller input).
Segment **7 lights up** when the re-levelling fault relay output is activated.
Segment **7** is not lit otherwise.

Segment **6**: **FR**, Brake relay.

101 Sor **01000000**

Indicates the State of the **Brake relay** output (BR).
Segment **6 lights up** when the brake relay output is activated.
Segment **6** is not lit otherwise.

Segment **5**: **DFP**, Fault Relay (Temporary).

101 Sor **00100000**

Indicates the State of the **Fault relay** output (**DEF** on **VEC06** board or controller input).
Segment **5 lights up** when the fault relay output is activated.
Segment **5** is not lit otherwise.

Segment **4**: **DFI**, Fault Relay (Definitive).

101 Sor **00010000**

Indicates the State of the **Fault relay** output (**DEF** on **VEC06** board or controller input).
Segment **4 lights up** when the fault relay output is activated.
Segment **4** is not lit otherwise.

Segment **3**: **STOPR**, Stop VVVF.

101 Sor **00001000**

Indicates the State of the **Frequency Drive**.
Segment **3 lights up** when the Frequency drive is OFF.
Segment **3** is not lit otherwise.

Segment **2**: **VENT**, Fan relay.

101 Sor **00000100**

Indicates the State of the **Fan relay** output. (VENT).
Segment **2 lights up** when the fan relay output is activated.
Segment **2** is not lit otherwise.

Segment **1**: **S**, Safety relay.

101 Sor **00000010**

Indicates the State of the **Safety relay** output (S).
Segment **1 lights up** when the safety relay output is activated.
Segment **1** is not lit otherwise.

Segment **0**: **L**, Line relay.

101 Sor **00000001**

Indicates the State of the **Line relay** output (L).
Segment **0 lights up** when the line relay output is activated.
Segment **0** is not lit otherwise.

EXPLANATION OF VARIABLES (1/3)

- Address **103**: **T°**, Radiator Temperature in degrees Celsius (°)

At this address can be read the power transistors cooling radiator temperature.

- Address **104**: **TCont**, Capacitor Current in Volts (V)

At this address can be read the D.C. net capacitor terminal current.

- Address **108**: **Imot**, Motor Current in Amps (A)

At this address can be read the current in each phase of the motor.

- Address **10A**: **DV0**, V0 stopping distance in metres (m)

At this address can be read the distance necessary to smooth V0 into zero speed.

- Address **10B**: **Diso**, Relevelling stopping distance in metres (m)

At this address can be read the distance necessary to smooth VISO into zero speed.

- Address **10C**: **DIns**, Inspection slow-down distance in metres (m)

At this address can be read the slow-down distance associated with the inspection speed VINS.

- Address **10E**: **DV1**, V1 slow-down distance in metres (m)

At this address can be read the slow-down distance associated with the intermediate speed V1.

- Address **110**: **Fre**, Frequency sent to the motor in Hertz (Hz)

At this address can be read the instantaneous frequency applied to the motor.

- Address **112**: **Con**, reference in Hertz (Hz)

At this address can be read the reference/Ideal frequency to be followed.

EXPLANATION OF VARIABLES (2/3)

- Address **114**: **Vt**, Lift speed in metres per second (m/s)

At this address can be read the car speed.

- Address **116**: **Codeur**, Incremental encoder no Unit

At this address can be read the counting of the incremental encoder mounted on the motor.

- Address **118**: **Recup**, Energy regeneration in percent (%)

At this address can be read the percentage of energy consumed in the ***x*** regenerative resistors. (***x*** = number of regenerative resistors depending of the drive model)

- Address **11A**: **Tmot**, motor power supply current in percent (%)

At this address can be read the power current applied to the motor.

- Address **120**: **GD**, Deceleration Gradient in V2 speed in metre per second squared (m/s²)

At this address can be read the deceleration slope associated with the different speed.

- Address **122**: **DRal**, Slow-down distance in metre (m)

At this address can be read the slow-down distance still to run.

- Address **124**: **Ical**, Visualisation of the starting current depending of the weighing

At this address, can be read the visualisation of the starting current depending of the weighing.

- Address **126**: **IDS**, Visualisation of the motor torque current in Amps (A)

At this address, can be read the visualisation of the motor torque current.

- Address **128**: **Pese**, Weighing visualisation in percent (%)

At this address, can be read the weighing visualisation.

EXPLANATION OF VARIABLES (3/3)

- Address **12A**: **I Cap1**, Current measuring device 1 no Unit

At this address can be read the information given by the current measuring device 1

Note: At Stop the information should be between 500 and 524.

- Address **12C**: **I Cap2**, Current measuring device 2 no Unit

At this address can be read the information given by the current measuring device 2.

Note: At Stop the information should be between 500 and 524.

- Address **12E**: **I Cap3**, Current measuring device 3 no Unit

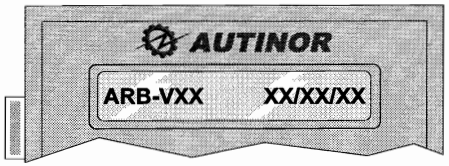
At this address can be read the information given by the current measuring device 3.

Note: At Stop the information should be between 500 and 524.

- Address **1FC**: **VisaD**, Visualisation of the load weighing operation.

At this address, can be read the visualisation of the load weighing operation.

TABLE OF PARAMETERS (1/2)



WARNING:

*The **Vector drive** model (2 to 9)* [Ad. 010] *is independent of the «VARIEL» model 1, 2 or 3.*

NAME	ADDRESS	DESIGNATION	VALUES MIN	VALUES MAX	FACTORY VALUES FOR VARIEL 1	FACTORY VALUES FOR VARIEL 2	FACTORY VALUES FOR VARIEL 3	FINALS VALUES
V0	**000**	Set-up speed	0,001 m/s	0,199 m/s	0,150 m/s	0,150 m/s	0,150 m/s	
Iso	**001**	Re-levelling speed	0,001 m/s	< V0	0,020 m/s	0,020 m/s	0,020 m/s	
Ins	**002**	Inspection speed	0,20 m/s	0,60 m/s	0,40 m/s	0,40 m/s	0,40 m/s	
V1	**003**	Intermediary speed	> Ins	< V2	Jobsite specificity	Jobsite specificity	Jobsite specificity	
V2	**004**	Full speed	> V1	3,50 m/s	Jobsite specificity	Jobsite specificity	Jobsite specificity	
Diap	**006**	Traction pulley diameter (Roping 2 : 1)			Jobsite specificity	Jobsite specificity	Jobsite specificity	
DV2	**008**	V2 Slow down distance	0,300 m	9,999 m	Jobsite specificity	Jobsite specificity	Jobsite specificity	
Acce	**00A**	Acceleration increment	02,0 s	9,90 s	Jobsite specificity	Jobsite specificity	Jobsite specificity	
FrArr	**00B**	Brake stopping time	0,50 s	1,00 s	0,5 s	0,5 s	0,5 s	
FrDem	**00C**	Brake starting time	0,00 s	2,00 s	0,5 s	0,5 s	0,5 s	
Thermi	**00D**	Motor thermistor (A)	1 A	255 A	Y / 30A / Δ / 50A	Y / 50 A / Δ / 85 A	Y / 80 A / Δ / 135 A	
Opt	**00E**	OPTION => *See over (leaf)*			Jobsite specificity	Jobsite specificity	Jobsite specificity	
RgT°	**00F**	Temperature Sonde Calibration	0°C	10°C	4°C	4°C	4°C	
Modele	**010**	Vector drive model	2	9	Jobsite specificity	Jobsite specificity	Jobsite specificity	
Tmor	**011**	Transistor pause time	1 µs	2,0 µs	1,5 µs	1,5 µs	1,5 µs	
IFlux	**012**	Flux current max in 0,1A	000,1 A	999,9 A	Y / 15A / Δ / 25A	Y / 20A / Δ / 35A	Y / 35A / Δ / 60A	
IFmin	**014**	Flux current min in 0,1A	000,1 A	Iflux	Y / 15A / Δ / 25A	Y / 20A / Δ / 35A	Y / 35A / Δ / 60A	
Gliss	**016**	Motor slip in %	02,0 %	25,0 %	Y / 7%	Y / 7%	Y / 5%	
GP fil	**017**	Filter proportional gain	0	20	1	1	1	
Inerti	**018**	Inertia	0%	10%	005%	005%	005%	
GP max	**019**	Max Proportional Gain > 12 Hz	1	32	010	010	010	
GP min	**01A**	Min Proportional Gain < 12 Hz	1	32	006	006	006	
GI max	**01B**	Max integral Gain	1	32	005	005	005	
GI min	**01C**	Min integral Gain	1	32	002	002	002	
TPGDP	**01D**	Start up temporising Gain	100 m/s	250 m/s	100 m/s	100 m/s	100 m/s	
GI Dep	**01E**	Start up integral Gain (F = 0hz)	1	20	008	008	008	
GP Dep	**01F**	Start up Proportional Gain (F = 0hz)	1	20	002	002	002	
T Dema	**020**	Start up Voltage en %	3 %	20 %	Y / 10% / Δ / 6%	Y / 11% / Δ / 6%	Y / 10% / Δ / 6%	
G Stabi	**021**	Stabilisation Gain	1	40	020	020	020	
FTmax	**022**	Max Voltage Frequency (See model)	16 Hz	100 Hz	Y / 40Hz	Y / 40Hz	Y / 40Hz	
ADFlux	**023**	Start up additional flux current	00.0 A	15.0 A	00 A	00 A	00 A	
N_Code	**024**	Encoder resolution	5000 pts	5000 pts	5000 pts	5000 pts	5000 pts	
N_Pole	**026**	N° of motor Poles (See model)	12	16	12	16	16	
Pays	**027**	Country Language (for VEC03).			F GB D SP	F GB D SP	F GB D SP	

TABLE OF PARAMETERS (2/2)

NOM	ADRESSE	DESIGNATION	VALEURS MINI	VALEURS MAXI	VALEURS USINE POUR VARIEL 1	VALEURS USINE POUR VARIEL 2	VALEURS USINE POUR VARIEL 3	VALEUR FINALE
DFN1	**028**	Fault 1 (Last fault)						
DFN2	**029**	Fault 2 (Before last fault)						
DFN3	**02A**	Fault 3						
DFN4	**02B**	Fault 4						
DFN5	**02C**	Fault 5						
DFN6	**02D**	Fault 6						
DFN7	**02E**	Fault 7						
DFN8	**02F**	Fault 8						
DFN9	**030**	Fault 9						
DFN10	**031**	Fault 10						
Dem	**034**	Number of starts (Strong weight bit)	0000	9999	0000xxxx	0000xxxx	0000xxxx	
Dem	**036**	Number of starts (Light weight bit)	0000	9999	xxxx0000	xxxx0000	xxxx0000	
Visu1	**038**	Address of program of visualisation number 1			F910	F910	F910	
Visu2	**03A**	Address of program of visualisation number 2			F912	F912	F912	
Visu3	**03C**	Address of program of visualisation number 3			F904	F904	F904	
Visu4	**03E**	Address of program of visualisation number 4			F908	F908	F908	
HinTen	**040**	Inhibition of voltage control	00	00	00	00	00	
Test	**041**	Transistor Test (Program 55 for test)	00	00	00	00	00	
Prog	**042**	**Programme type (ARB)**			**ARB**	**ARB**	**ARB**	
TMan	**043**	Controller Type (Normal) Speed information output on OT01 board if > to 0, 30 m/s			- **OTIS**	- **OTIS**	- **OTIS**	
Mcode	**044**	Code number memory			0000	0000	0000	
Code	**046**	Code number entry			0000	0000	0000	
IPes	**04C**	Starting weighing current (Empty, IPes = ###, # A)			A			
K-Pes	**04E**	Weighing coefficient			%			
VisaD	**1FC**	Visualisation of the load weighing operation						

* Opt parameter Detail - OPTion - Address 00E:

Address	Name	Seg 7	Seg 6	Seg 5	Seg 4	Seg 3	Seg 2	Seg 1	Seg 0
00E	Opt	ML220V	DFT65°	AP_DIR	RETSEC	BAND2 **(Step of 2, 66)**	NOBAND	PESECH	IG
FACTORY VALUES		0	0	1	0	0	1	0	0
FINALS VALUES									

Seg 3: 0 =
1 = BAND2 (Step of 2, 66)

Seg 2: 1 = No tape head O03

Seg 1: 0 =
1 = " Load weighing " works

Seg 0: 0 = When Installation / Adjustment

TABLE OF INPUTS/OUTPUTS

Address	Name	Seg 7	Seg 6	Seg 5	Seg 4	Seg 3	Seg 2	Seg 1	Seg 0	Page
		Inputs 1								
100	**En1**		V2	V1	V0	INS	VISO	DE	MO	43
		Outputs								
101	**Sor**	RISO	BR	DFP	DFI	STOPR	VENT	S	L	45
		Inputs 2								
102	**En2**			CCL	CCS			CAA	CAB	44
103	**T°**	Radiator **T**emperature (°C)								46
104	**TCond**	Capacitor voltage (v)								46
108	**Imot**	Motor Intensity (A)								46
10A	**DV0**	V0 Stopping distance (m)								46
10B	**Diso**	ISO Relevelling Stopping distance (m)								46
10C	**DIns**	Slow down distance in inspection speed (m)								46
10E	**DV1**	Slow down distance in speed V1 (m)								46
110	**Fre**	Frequency sent to the motor (Hz)								46
112	**Con**	Theoretical / reference (Hz)								46
114	**Vt**	Lift Speed (m/s)								47
116	**Codeur**	Incremental encoder								47
118	**Recup**	Energy recovery (%)								47
11A	**TMot**	Motor power voltage (%)								47
120	**GD**	V2 Speed slow down gradient (m/s²)								47
122	**DRal**	Slow down distance (m)								47
124	**Ical**	Visualisation of the starting current depending of the weighing								47
126	**IDS**	Visualisation of the motor torque current								47
128	**Pese**	Weighing visualisation								47
12A	**I Cap1**	Current measuring device **1** *(VEC12)*								48
12C	**I Cap2**	Current measuring device **2** *(VEC12)*								48
12E	**I Cap3**	Current measuring device **3** *(VEC12)*								48

TABLE OF FAULT CODES

FAULTS DISPLAYED BY THE VECTOR DRIVE (VEC01 Board)

The **VECTOR DRIVE** fault code stack is found at Address **28**, **29**, **2A**, **2B**, **2C**, **2D**, **2E**, **2F**, **30** and **31**. At Address **28** the most recent fault and at Address **31** the oldest recorded fault.

BEFORE LEAVING THE SITE, SET THE FAULT LIST BACK TO 00.
IN THIS WAY YOU CAN KEEP BETTER TRACK OF ANY BREAKDOWNS.

FAULT N°	DESIGNATION	VISUALISATION
-00-	Functioning correctly.	No fault
-10-	Inversion in the rotation direction (detected by the tape head)	Phase inversion
-11-	Consequence of A and B signals changing state at the same time	Tape head fault
-22-	Slip integrator.	Integrator
-52-	« 10 » cut while in motion.	10 cut while in motion
-62-	Fault with the O03 tape head.	Tape head counting irrational
-77-	**"L"** contactor not energised.	L contactor Not switch On
-78-	**"S"** contactor not energised	SEC contactor Not switch On
-80-	Power supply capacitor (tc) missing at start-up or current < 450 v at start-up.	Current < 450 v at start-up
-81-	Average current higher than allowed current.	Thermistor
-82-	Real speed 15 % higher than programmed nominal speed vn.	Speed > 115% of the nominal speed
-83-	Inspection speed exceeds 0,6 m/s.	Inspection speed > 0.6 m/s
-84-	Relevelling speed exceeds 0,3 m/s.	Relevelling speed > 0.3 m/s
-85-	Regenerative power exceeds 650 Volt (brake circuit fault).	Regeneration
-86-	Missing power supply during movement command (fuse blown or contactor not energised).	No power while in motion
-87-	"Line" contactor not dropped.	Contactor not realising
-88-	Simultaneous « Up » and « Down » command.	Simultaneous Up and Down
-89-	Radiator température exceeds 40°.	Radiator T°
-90-	Ac current exceeds max transistor current.	Power supply too high
-91-	Transistor n°1 fault. (top)	Transistor N°1 (Top)
-92-	Transistor n°2 fault.	Transistor N°2
-93-	Transistor n°3 fault.	Transistor N°3
-94-	Transistor n°4 fault.	Transistor N°4
-95-	Transistor n°5 fault.	Transistor N°5
-96-	Transistor n°6 fault. (bottom)	Transistor N°6 (Bottom)
-97-	Regenerative transistor fault.	Regenerative Transistor fault
-98-	Paraméter fault	Parameter fault
-99-	Eerom writing fault.	Eerom writing fault
-100-	Motor intensity > maxi intensity.	Motor intensity > Max
-101-	Incrémental encoder fault.	Encoder fault
-102-	Incremental encoder speed +/- 15% fault.	Encoder speed +/- 15% Advised
-103-	Direct approach fault.	MLIFT stop on V0 movement
-104-	Current measuring device not connected	Not connected
-Autre-	Non programmed fault.	Not programmed

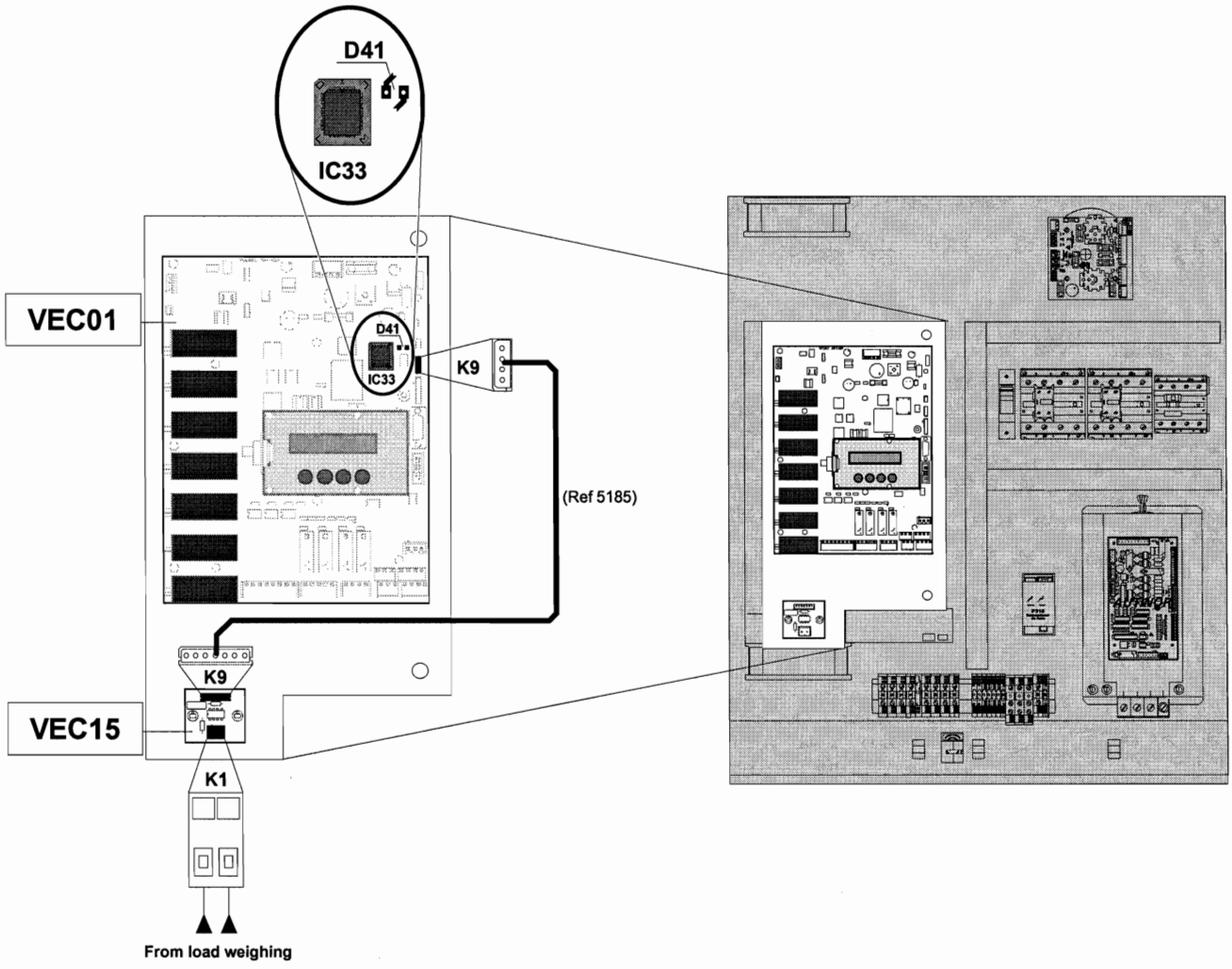
WARNING:
Please take precautions when you send us your electronic boards (use anti-static bags)

APPENDIX

LOAD WEIGHING VEC15 INTERFACE BOARD

Site of the board, location of terminal blocks and connection:

WARNING: Before used the **VEC15** interface board, check on **VEC01** board, that the **D41** diode, located on the right memory programs **IC33**, misses.



CONFIGURATION OF THE LOAD WEIGHING LWDEE

Balancing with 50 % of the car

As to obtain an optimal operation, **It is imperative** that the counterweight balances the weight of the car increased of half of the live load.

It is necessary also that the measurement of the load in car is not influenced by the weight of the cables. The problem is non-existent when the number of levels is low (weights of the cables are equivalent to 10 % of the live load) or when a compensation chain exists.

Observation: Concerning the semi load in car, adjust K-Pes so avoid a « Roll Back » or a « Roll Over ». Balanced with 50 %, K-Pes = 100 %, balanced with 45 %, K-Pes = 90 %, balanced with 40 %, K-Pes = 80 %.

Information:

- The load weighing is installed and regulated mechanically. It is configured and regulated in accordance with the PTC CH 17 913 of LWDEE.
- The communication is established between the LWDEE and the drive and you can read the load in car on the drive, address 128, parameter Pese = XX % (address F928 with VisuPC).

Adjustment:

- Configuration of the pretorquing in the drive ***AUTINOR*** with the integrated parameter/diagnostic communication tool.

Stage	Action	
1	Program at address **04E** the parameter **K-Pes** = **100%** (F84E with VisuPC).	
2	Ajust the starting gain: • Address **021**, parameter **GStabi** = **8** (F821 with VisuPC). • Address **01E**, parameter **GIDep** = **1** (F81E with VisuPC). • Address **01F**, parameter **GPDep** = **1** (F81F with VisuPC).	
3	Activate the bit Load Weighing in the drive. Address **00E**, parameter **Opt** = 000001X0, X étant le bit 1, **PESECH** = **1**. That is to say **Opt** = 00000110 (F80E with VisuPC).	
4	Position the car empties at the highest level.	
5	Increase at address **00C** the parameter **FrDem** = **2 s** (F80C with VisuPC).	
6	Control a displacement down and observe the traction pulley.	
	If	**Then**
	The car leaves backwards: « Roll Back ».	Increase the parameter: Address **4C**, **IPes** = XX A (F84C with VisuPC).
	The car leaves ahead without waiting until the brake is removed « Roll over ».	Decrease **IPes**.
	The brake is removed then after 2 s the car share in the good direction without « Roll Back ».	**IPes** is at the good value.
7	Ajust the parameter **FrDem** so that the brake is completely removed before the departure of the car, default value 0,50 s.	